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THE ANALYST;
 A
 QUARTERLY JOURNAL,
 OF
 SCIENCE, LITERATURE,
 NATURAL HISTORY AND THE FINE ARTS.

EDITED BY

EDWARD MAMMATT, Esq., F.G.S., F.S.A.,

MEMBER OF THE BRITISH ASSOCIATION, OF THE BIRMINGHAM PHILOSOPHICAL INSTITUTION, AND OF THE LEICESTER, THE DERBY, AND THE NOTTINGHAM LITERARY AND SCIENTIFIC SOCIETIES.



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NOTICES TO CORRESPONDENTS.

Crites will perceive that his suggestions have been adopted in the present number. The "Stake" has been received, and is under consideration; as is also "The Monk of St. Bernard," a tale, moral and descriptive.

Article IV. of the *Divi Botanici* has been unavoidably postponed until our next publication. Sketches of European Ornithology (Gould's "Birds of Europe") will be continued until the series is completed.

Observations on Burnett's History of the Reformation will be acceptable. The Author shall have a private communication.

The Essay on the Structure of Animals, with its Adaptation to External Objects, shall have a place in our next number.

Mr. Allies on the Causes of Planetary Motion, with a Diagram; and the *Christian Examiner*, or an Exposition of the Basis of Christianity, have been received.

The Memoir on the Cause and the Effects of the Alcoholic and the Acetous Fermentations, is under consideration.

Illustrations of the Thievishness and Garrulity of the Magpie are not suited to the pages of *The Analyst*; we recommend the writer to offer his article to the Editor of *The Naturalist*.

We request the communication promised by Crites to be transmitted to the Editor at his earliest convenience.

A portion of Mr. Ansted's Essay has been omitted, owing to the loss of one page of the M.S. We hope to receive a continuation of his article at an early period.

The "Examples of Precocious Impudence" is too personal; it might ruffle the feathers of some of our contemporaries.


Several communications relating to the Fine Arts have been delayed for want of space. The Essays on Education and Insanity will be continued.

Philotypus is informed that the "Printer's Devil" has already been reprimanded for the errors in our preceding publication.

PERIODICALS RECEIVED IN EXCHANGE.—*The London and Edinburgh Philosophical Magazine*, Nos. 78, July; 79, August; 80, September.—*The Magazine of Natural History*, Nos. 19, July; 20, August; 21, September.—*The Annals of Natural History*, Nos. 5, July; 6, August; 7, September.—*The British and Foreign Medical Review*, No. 11, for July.—*The Naturalist*, No. 23, for August, and 24, for September.

Nine Volumes of *The Analyst* have been completed, each number of which contains Original and Analytical Articles; Critical Notices of New Publications; Proceedings of Literary and Philosophical Institutions; Reviews of Music and the Fine Arts; Miscellaneous Communications, original and selected; Correspondence; Obituary; and Meteorological Reports. The Numbers are occasionally illustrated with lithographed sections and figures, and wood cuts.

It is requested that all communications sent to the Editor may be directed (POST PAID) to the care of MR. BARLOW, Bookseller, Bennett's Hill, Birmingham; and contributions should be sent early in the quarter preceding that in which they are expected to appear.

 The 26th Number of *The Analyst* will appear on the 1st of January next.

* * * *The First and Second Volumes of "The Analyst" (with Index), in cloth boards, price 10s., and the Third, Fourth, Fifth, Sixth, Seventh, Eighth, and Ninth Volumes, price 9s. each, may be had of all Booksellers.*

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VOL. IX.

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25 NOV. 1916



ADDRESS TO THE PUBLIC,

BY THE EDITOR.

As continued favours demand repeated acknowledgements, we hope our gratitude will not be thought ostentatious or troublesome, if, at the commencement of this ninth volume of "THE ANALYST" we express our deep sense of the favourable reception which our Journal has hitherto experienced. In availing ourselves, however, of this prescriptive privilege, it is not our intention to blazon its merits, indulge in empty boasts, or hold out promises of unattainable excellence; we wish to speak explicitly and to the point.

The nature and plan of our Periodical has been already unfolded and explained in our general prospectus. For the benefit, however, of those who may not have seen our advertisement, and who may wish to embrace the opportunity afforded by the commencement of a new volume for beginning their subscriptions, we will, in this place, briefly recapitulate them. The grand, the leading principle on which this Publication is conducted is, *impartiality*, which term, however, we wish to be understood merely in its literary and scientific sense, as all political feeling, with its inevitable results, bitter prejudices and factious hostilities, is carefully excluded. In "THE ANALYST," however, will be found Original and Analytical Articles, tending to illustrate the various branches of Natural Science, Historical Literature, Mental Philosophy, Natural History, Music, and the Fine Arts; with departments for Biblical Criticism, Outlines of Periodical Literature, reports of Metropolitan and Provincial Institutions, Miscellaneous Communications, Correspondence, and Meteorological Observations.

Acting upon these general principles, we shall endeavour to infuse into our pages a reasonable admixture of the useful and entertaining; of sound and solid information, and of that lighter and more flowing

literature which has, for the readers of periodical works, acquired such fascinating charms. Arrangements have been made for ensuring contributions from several well-known scientific and literary gentlemen, whose extensive acquirements, joined to their great experience, render them fully conversant with the objects to which this Journal is devoted; and we trust that, from our numerous resources, our future numbers will be rendered generally interesting and universally useful.

We take this opportunity of returning our best thanks to those kind friends who have enriched our pages with their contributions, and request a continuation of their favours.

Our means, not merely of sustaining, but also of greatly improving, the general character of our Publication, are copious and available. The talent embarked in our service is now far greater than our most sanguine expectations could have led us to anticipate; and we have not the slightest hesitation in saying that we never commenced a volume under such favourable auspices. Encouraged by the public approbation, we are determined to pursue our plan with redoubled vigour, assured that talent, industry, perseverance, and enterprize, will ever be suitably rewarded; that the old motto, "*Palmam qui meruit ferat,*" will ever be sustained; and that the indispensable preliminary to ultimate success is—to deserve it.

N° 1.

FIELD



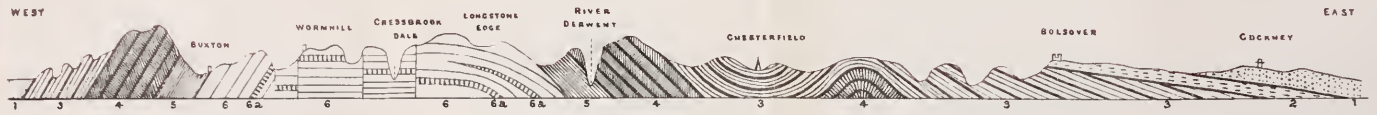
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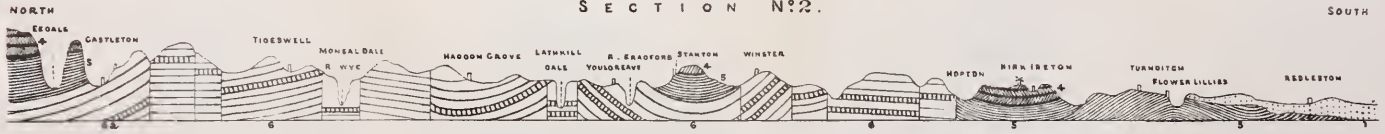


DERBYSHIRE.

SECTION N°1.



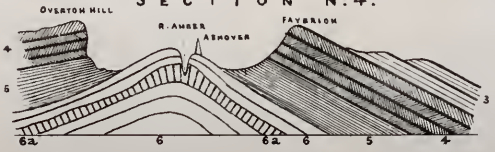
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SECTION N°4.



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- 2 — Magnesian Limestone
- 3 — Coal Measures
- 4 — Millstone Grit

- 5 — Limestone Shale
- 6 — Mountain Limestone
- 6a — Toadstone

THE ANALYST.

SKETCH OF THE GEOLOGY OF DERBYSHIRE.

SECOND PART.

BY J. B. JUKES, B.A. F.G.S.

HAVING, in the last number of *The Analyst*, given a slight sketch of each of the geological formations found within the county of Derby, I come now to the positions which they occupy, both absolutely and relatively to each other. This department of geological investigation has been correctly termed Physical Geology, and is that portion of the science which has the greatest practical importance in all mining or other operations in which a knowledge of the structure of any part of the earth's crust is desirable. Nor is its theoretical importance to the scientific geologist less than its utility to the practical man, since it is only by accurately cultivating this branch of the science that we can hope to arrive at the solution of those great dynamical problems which the disturbing forces that act upon the crust of the globe propose to our investigation.

In speaking of the geological structure of the Derbyshire district, it is necessary that we should reverse the order used in the preceding part of this paper, and begin with the lowest of the formations there mentioned, and, having thus got a base for our operations, proceed regularly in the structure of our edifice.

The reader, then, must please to imagine a substratum of mountain limestone, of the thickness and with the characters previously described, to exist over the whole of Derbyshire and the adjoining counties to the east, north, and west, for an indefinite and unknown extent, sometimes forming the surface of the country, at others buried to a great depth under other materials.* The greatest extent of

* That this is not a vain imagination will be shown presently.

surface formed by the mountain limestone is in the north of Derbyshire and part of the adjoining county of Stafford. If the reader will take a map in his hand, and draw an undulating line through the following places, he will get a rough notion of the extent of this district. Beginning at Burton, the boundary of the limestone runs nearly north to the small village of Dove Hole, thence, leaving Chapel-en-le-Frith about two miles to the left, proceeds just under Rushup Edge till it reaches Castleton. From Castleton it goes towards Hope, and then turns to the S. to Abney. From Abney it goes round Eyam and Stoney Middleton, and proceeds thence, by Hassop, to Ashford. From Ashford it runs close to the N. and E. of Bakewell, and proceeds by Haddon Hall to the Lathkill. Here it deflects to the W. following the course of that river till it meets the Bradford. It keeps along the eastern bank of the Bradford to its source, and then turns again to the E. by Gratton and Elton, runs just to the north of Winster and Wensley, and crosses the Derwent in Darley Dale. Hence it runs just at the back of Matlock High Torr, and recrossing the river at Cromford, continues S. to Wirksworth. From Wirksworth the boundary of the limestone turns due W. running by Carsington and Bradburn to Tissington, and thence, turning S. to Thorpe, crosses the Dove into Staffordshire. Here its boundary is irregular, but it includes the villages of Blore, Caldon, Waterfall, Grindon, Mixon, Butterton, and Ecton, and recrosses the Dove at Hartington. From Hartington, it runs up the E. bank of the Dove to Crowdygate and Glutton, then passes through Dowel to Thirkalow, and including Harper Hill and Burbage, arrives at Burton. The space enclosed in this irregular outline is occupied entirely by mountain limestone and its associated toadstone. The other places where this formation is visible at the surface would be marked on the map by an oval inclosing the village of Ashover, of about $1\frac{1}{2}$ m. long and $\frac{1}{2}$ m. broad, having its longer axis running about 20° N. of W. and the village in the northern part of the space; by a similar oval running nearly in the same direction, but of twice the length, with Crich about in its centre; by a small circle at Birchwood Park, 5m. S. of Ashbourne; and by the larger district about Calke and Ticknal connected with the mountain limestone patches of Leicestershire, and mentioned in a former paper.

The condition of the first and principal district above mentioned will be best understood by imagining the rocks to have been originally horizontal at a lower level, and then to have been elevated by an expansive force acting from below, until they were swollen up, as

it were, into an irregular, low-curved, dome-shaped mass, with many great cracks and fissures intersecting each other at right angles; then a partial settling to have taken place, and some of the pieces divided by those fissures to have slipped below, while others were elevated above their previously common level. This will give a rough notion of the present broken and disjointed state of the mass, where, however, the fractures are clearly traceable to a common cause, and where the general inclination of the beds slopes on every side from the central position. That this is the general position of the beds may be seen by actual inspection. Along the western boundary some miles N. and S. of Buxton, the limestone dips everywhere to the W. passing regularly under the superincumbent strata. On tracing it towards Castleton, it first dips N.W. and about that place due north. Between Castleton and Bakewell the limestone has an easterly inclination; and the same general dip may be observed throughout the eastern boundary all the way to Wirksworth. The whole of this eastern portion, however, is very remarkable for the great folds or flexures exhibited by the limestone strata. Scarcely any portion is a perfect plane, but it is all bent into regular and alternate elevations and depressions, like mighty ridges and furrows, the sides of which dip respectively to the N. and S. while the whole, taken as a mass, dips invariably and sometimes rapidly to the east. Of these great corrugations, Matlock High Torr and the adjacent cliffs down to Cromford, expose very beautiful examples, the strata of each cliff, while viewed in front, dipping evidently, on either hand, from the summit of the hill to the bed of the river, or N. and S. respectively, while a cross section would show them to be, at the same time, dipping into the hill, or towards the E. at a considerable angle.* The remarkable curve of the boundary of the limestone between Winster and Youlgreave, is owing to this peculiar structure, increased perhaps by a positive dislocation. It is caused by a depression or downward curve of the limestone between these two places, the hollow being filled up by the superior rocks; the bottom of this hollow dipping, doubtless, to the E. while its sides incline to the N. and S. respectively.†

The dip of the beds along the southern boundary is not so regular

* The quarries at Matlock Bridge show this very clearly. The whole hill of Masson Lowe, of which these beautiful cliffs are but small portions cut off by the gorge of the river, would exhibit the same structure on a larger scale could its stratification be exposed.

† See section No. 2.

as that on the W. N. and E. as, for some miles west from Wirksworth, the limestone is cut off by a great fault, which causes a sudden downcast (instead of a regular dip) to the S. All the way to the Dove the limestone is much broken and disturbed, but whenever a dip is seen along the whole line between Wirksworth and Thorpe, it is, I believe, invariably towards the south. Having established the fact of the limestone dipping, at each part of its boundary, *from* the central portion of the district, and passing, for the most part, regularly under the superior strata, the next fact that would strike our attention is, that we cannot proceed far from the boundary towards the central position without coming abruptly to the edge of a precipice or steep slope, or, geologically speaking, an escarpment. This is a necessary consequence of the position of the rocks, since, as the beds *rise towards* the central portion wherever they are cut through by a fault, and the inside piece depressed, or a valley in any way formed, the broken edges of the beds must be exposed to view, and a steep cliff or escarpment formed. From the inclination of the beds, too, the escarpments on the western side must face the E. while those on the eastern side look towards the W.* This position of the escarpments and inclination of the strata, however, must be understood very generally, and does not hold good on advancing far into the limestone country, there being nothing like any well-defined central ridge or axis of the district from which the beds dip equally on either hand, all the central portion being broken through by faults, and everything like regularity of position destroyed. On looking at a map on which the outline pointed out before has been traced, it will be seen that the limestone district is narrowest in the middle, or between the Dove and the Bradford, while N. and S. of that tract it expands to a considerable extent. This middle tract is comparatively undisturbed, and I am not at present aware of any place between Hartington and Middleton, by Youlgreave, where the toadstone exists at the surface. In all the limestone district, however, north of this line, we continually find the toadstone either at the tops of the hills or the sides of the

* It would have been next to impossible, for instance, for a steep cliff to have been formed, like the Matlock High Torr, on the opposite side of the river, or with its face to the E. because, as soon as the ravine was formed, the beds which dip towards it on that side, being cut through, would be deprived of their support, and slide one over another into the valley: this, in fact, has, at some time, taken place, and the side of the hill opposite the High Torr is covered with broken ruins. The beds of the Torr itself, on the contrary, dipping from the ravine and into the hill, are supported, and can scarcely by any possibility fall into the river, unless deeply undermined.

valleys, and this sometimes so frequently, and in two or three places so near together, as to make it appear that it must belong to more than one bed. At Copt Round, for instance, between Castleton and Peak Forest, there is a bed of toadstone found at the summit of the hill; it appears again about half-way down, and again in the valley at the foot, and under such circumstances as would induce any one, at first sight, to suppose it to belong to three separate beds lying one under another. On a more detailed examination, however, these three pieces are found to unite towards the S. and become one, their disunion at Copt Round being produced by two faults. Similar circumstances are continually occurring over all this district, producing phenomena which it requires the greatest care and the most patient and laborious investigation to disentangle and reduce to order and connection. For want of this care and labour it was long the commonly received opinion that three separate beds of toadstone existed throughout the limestone district, till Mr. Hopkins did so much towards giving us better and more accurate information. Over all the country about Burton, Tideswell, and Castleton, he has shown that only one bed of toadstone is *at present known* to exist, and that its continued re-appearance at the surface is solely owing to faults and dislocations.* On approaching Bakewell, however, there are strong indications of two beds existing at Fin Copt Hill, near Ashford; and this is certainly the case in the valley of the Lathkill, as mentioned in the preceding part of this paper. On passing towards Winster and the S. part of the limestone district, two beds have been sunk through at Snitterton, and may be traced along the ridge between Winster and Wensley. I believe, also, that the toadstone in Masson Lowe and at Matlock High Torr belongs to two beds, although Mr. Hopkins gives an explanation of these, as also of Fin Copt Hill, on the supposition of one bed only. It is certain that all this district is very much broken by faults, which tend to complicate the phenomena very much, and render their complete explication a work of time, as well as of labour and sagacity. The continued storing of all the facts gleaned by mining operations will be necessary, and those facts can only be thoroughly arranged and investigated by some one who, like Mr. Hopkins, shall have been accustomed to the searching out of simple principles from a mass of complicated details. The toadstone is seen on the extreme southern border of the limestone, at the back of Hopton Hall, on a level with the shale, which sets in immediately

* See sections 1 and 2.

beyond it, giving evidence of a very great fault, which has suddenly depressed the whole of the first limestone and the lower part of the shale, and buried them out of sight to the S. of this fault. W. of this place, however, and over all the S.W. corner of the district, as well as in the limestone district of Staffordshire, no trace of the toadstone has ever been detected. This circumstance is probably due to the absence of any considerable faults. All the S.W. portion of the limestone district has been so acted upon by the disturbing forces as rather to be bent and twisted into great ridges and hollows than actually snapped asunder; or where broken this, there has not been any great elevation or depression caused at the line of fault, so much as a change of dip or inclination of the beds. Even the Dove does not cut deeply into the limestone, as the beds dip, upon the whole, towards it on either hand; and thus the first tendency to the formation of the valley was a downward curve of the limestone itself.*

However great the apparent irregularity and confusion to which the faults give rise, it is found, on carefully tracing them out and laying them down on a map, that they have themselves very great regularity, and evidently follow certain general laws. All the principal faults run for considerable distances, sometimes several miles, in directly straight lines, and have others crossing them at right angles.† The one set in Derbyshire run N. and S. and the others, of course, E. and W. When a fault running from the S. in one direction is crossed by another at right angles, the angle of rock included between the two is frequently lifted up, with a steep face on either side; or when two faults running parallel to each other are crossed by another, the included piece is either elevated or depressed at the cross fault, and the other end affected in an opposite direction, and thus the piece made to sway, as it were, on a central axis. Priestcliff Lowe is an example of this latter case. A valley is frequently bounded by a fault on either hand, the two running parallel to each other; but it is very remarkable that these faults seldom coincide with the sides of the valley, but run at one or two hundred yards distance from it, the whole mass between them having been let down together, and thus, probably, a depression caused which gave the first tendency to the

* The river frequently cuts through beds having the same dips on either side, but the position of the strata in the great mass of the hills I believe to be that mentioned in the text.

† For by far the greatest part of the information respecting the faults and veins of Derbyshire, I am indebted to Mr. Hopkins's pamphlet before mentioned.

formation of the valley. Of this circumstance, Monk's Dale, the valley of the Wye in what are called Miller's and Mousal Dales, Lathkill Dale, and Bousal Dale, are admirable examples. One of the most interesting circumstances respecting the faults is their connection with the mineral veins. All the principal lead veins in Derbyshire are connected with faults, which run parallel to them at a little distance; and as a general rule the vein is on the upcast side of the fault. The direction of the veins, moreover, is the same with that of the faults, one set running N. and S. the other E. and W.—While, however, the principal faults run N. and S. the most regular and continuous veins have an E. and W. direction. Some of the E. and W. veins have been traced for many miles without any real termination having been reached. Of these, the principal are the Yoke-cliff, running through Wirksworth; the Longrake, whose line passes S. of Haddon Hall and Mony Ash, and which has been traced into Staffordshire; the Mochsha vein, S. of Bakewell; the Deep Rake of Longstone Edge; and the High Rake, the Moss Rake, and the Dritton vein, between Tideswell and Castleton. The E. and W. veins are generally comparatively narrow, but preserve their width throughout their course, and contain a great quantity of ore. The N. and S. veins, on the contrary, are more irregular, sometimes widening to three or four yards, and then closing, and apparently, perhaps, ending, again to open out in another part of their course. Their contents, too, are very irregular, being sometimes very rich, and at others containing nothing but spar, or not unfrequently fragments of rock and broken rubbish, in which merely detached pieces of ore can be discovered. To all these evidences of mechanical origin it may be added that a vein is itself sometimes a fault, the beds on opposite sides of it being shifted from their original common level.

All these facts accord very well with the theoretical results deduced by Mr. Hopkins* by mathematical analysis, from the examination of the problem "What would be the effect of the action of an elevating expansive force upon a homogeneous mass of rock, of indefinite thickness and longitudinal extent, and bounded laterally by parallel lines." He has shown that this effect would be the production of great longitudinal fissures running parallel to each other in straight lines, and having others at right angles to them. The direction of these systems of fissures would be determined by the directions of the principal tensions of the mass. That the principal fissures would be at

* See his paper in the *Transactions of the Cambridge Philosophical Society*.

right angles to the principal tension, and parallel to the axis of elevation. That the fissures, likewise, would not begin at the surface, but at some point beneath it; and that those which are parallel must be necessarily contemporaneous in their origin. That subsequent movements would be likely to convert the longitudinal fissures into faults, producing considerable relative displacement of the beds on either side of them, and might cause the fissure to be very irregular in its width at different points; that the width of the transverse fissures, on the contrary, would be likely to be more regular, and the relative movement of the beds on either side of them to be less.

Now, applying these general results to the particular instance of Derbyshire, we know the axis of elevation of this district to be a north and south one, because it belongs to an elevated ridge which stretches away to the N. as far as the borders of Scotland; and we have seen that the chief faults and most irregular veins have a N. and S. direction, while the E. and W. veins, on the contrary, are remarkably regular. From all these circumstances it is clear that faults and veins are both due to a mechanical cause; that they are, in fact, both fissures produced by the same cause and at the same time, during the general elevation of the district. That a fault is a fissure generally devoid of minerals, on opposite sides of which the beds are relatively displaced; that a vein is a fissure producing generally little displacement, but filled with minerals in a state of greater or less purity and crystallisation. In what way these mineral substances gained their present position, we must probably have recourse to the chemist to resolve. That they were not placed there by mechanical causes, as was at one time supposed, is certain; because in Derbyshire the toadstone almost invariably continues across the vein, completely cutting off the connection between the parts above and below. If, then, the veins had been mechanically filled from above, they ought to be empty below the toadstone; if from below, the part above the toadstone would contain no minerals. It is evident, moreover, from the veins of this and other districts, that the quantity and quality of the minerals in a vein very greatly depend upon the kind of rock which composes its sides, making it probable that these minerals have been, in some way, segregated from the adjoining rock into their present position. This subject is, however, at present beset with difficulties. We come now to the next superior rock,

THE LIMESTONE SHALE.

The E. and W. sides of the limestone district are bounded by a narrow valley worn out in the soft beds of the shale, which on the one side reposes regularly on the limestone, and on the other rises half way up the hills, and supports the millstone grit.—(See sections 1 and 2). This valley varies in width from $\frac{1}{2}$ m. to 2m. according to the greater or less extent to which denuding forces have acted upon it and its gritstone covering. Occasionally, however, there is no valley, but a hill of shale rising abruptly from the hill of limestone on which it rests; or it is not unfrequent to find a hill of shale rising out of the valley, and protected by a cupping of millstone grit. It, of course, every where partakes of the inclination of the limestone below it, and must be affected by the same or similar faults. Where, however, the solid beds of the limestone have been snapped clean asunder by the dislocating force, the softer beds of the shale are often bent and contorted in the most singular manner. In these lateral tracts, however, the shale seldom shows anything of remarkable interest. In the part N. of Castleton, the most remarkable spot in the shale, is the well-known hill called Mam Torr, or the Shivering Mountain, which is a hill of shale resting upon limestone, and being very precipitous, especially on one side, the action of the weather has continually undermined and worn away the loose and crumbling materials, until a great natural excavation has been formed, to which each successive winter makes additions, while the ruin lies scattered at its foot. The line of hills between Castleton and Eedale consists chiefly of this formation, whence it stretches away to the N. with many minor corrugations and changes of dip, but on the whole nearly horizontal, forming, as it were, the base of the country for the support of the masses of gritstone. The valleys all cut down deeply into the shale, frequently exposing faces that exhibit its alternation with, and gradual passage into, the millstone grit. If we go to the S. of the limestone district, we find the shale spreading out, and occupying nearly all the country between Wirksworth, Derby, and Ashbourne, north of the boundary of the new red sandstone. Over this tract its position is remarkable, as it is bent up and down, in every direction, into great curves; but the scarcity of natural or artificial sections renders it rather difficult to make out. On the E. it may be seen going down from Wirksworth, below Ashley Hay and Shottle, to Milford, dipping every where to the E. under the gritstone. At Milford its dip is

rather N.E. as may be seen by the examination of the tunnel of the North Midland Railway; and it no doubt preserves the same dip, as it crosses the Derwent, and runs below Little Eaton to Breadsall. In Breadsall brook it may be seen greatly disturbed, no less than ten changes of dip occurring within about $\frac{1}{4}$ m. the angles of inclination varying from 20° to a complete perpendicular. At Breadsall it becomes concealed by the new red sandstone. Crossing to the W. side of the valley that comes down from Wirksworth to Duffield, the shale may occasionally be seen dipping rapidly to the W. more especially about Ideridge Hay, and thence to Wirksworth. In the small valley that runs down from below Wirksworth to Hopton, the shale dips to the S. and the effect of this depression to the W. and S. is, to bring in a patch of gritstone resting upon it about Kirk Jreton. From underneath this, however, it soon rises again with a dip towards the N. and this is continued till the lower beds appear at Flower Lillies, near Turnditch, all beyond this is obscured by new red sandstone and diluvium; but we get the upper beds again, where it alternates with the gritstone, within the boundaries of the new red sandstone, at the back of the Royal Oak at Langley.* Here, likewise, it dips to the N.E. at an angle of 15° ; so that one or two changes, and probably some faults, must be concealed by the overlying beds between here and Turnditch. On tracing the shale to the W. we find it between Atlow and Kniveton, rising up into a round hill of very considerable elevation, called Atlow Winn, at the S. end of which, at a place called Agnis Meadow, beds the same as those of Turnditch are worked for their limestone, and the most extraordinary twistings and contortions of the strata are exposed. Even the solid beds of limestone are bent into regular curves, and bear the appearance of arched masonry. Its general dip here appears to be towards the S., whence it shortly gets concealed by the new red sandstone. A quarry, apparently in beds similar to these, was formerly worked at Wild Park, near Brailsford, but no face is now exposed to give us any information as to the position of the strata. From Agnis Meadow it lies pretty level all the way to Ashbourne, but at Ashbourne Green it dips 30° N.E. and immediately beyond is concealed by new red sandstone.

* In speaking of the "red and white sandstone," in the former part of this paper, I believed, from some detached specimens I had seen, and from its position within the borders of that formation, that this quarry belonged to it. On seeing the quarry itself, however, it was immediately evident that the beds belonged to the upper part of the limestone shale, or lower part of the millstone grit. Horizontal new red sandstone may be seen in the road close behind it.

THE MILLSTONE GRIT

Is the next formation in the ascending order, lying immediately above the shale, and forming generally a high, bare tract of moorland between the limestone country and the coal-fields, of greater or less extent, according to circumstances. It composes some of the greatest elevations in the county. Axe Edge, near Buxton, from which four rivers take their rise, has an altitude of 1875 feet above the sea, and Kinder Scout, and some of the hills in the Woodlands, have probably a still greater height. The same general position is preserved by the millstone grit, which has been described as belonging to the inferior rocks. The hills about Buxton and Chapel-en-le-Frith dip towards the W. and bury themselves in that direction beneath the narrow strip of the Cheshire coal-field, while their steep edges or escarpments face to the E. overlooking the shale and limestone below.—(See section No. 1). In the northern part of the district, the gritstone follows the position of the shale, and dips at first from the limestone towards the N. but soon becomes nearly horizontal, and stretches away into Yorkshire.—(See section No. 2). All the northern corner of the county (which goes by the name of the Woodlands) exhibits the characters of the millstone grit to perfection. It forms a large plateau at a great elevation, furrowed in every direction by deep vallies, which cut right through it and down into the shale below, and thus produces a great complicated cluster of high flat-topped hills. These are, for the most part, abandoned to their native heather, which clothes their sides with its brown and purple covering, while their summits are occupied by wild and almost impassable morasses. Lines of dark embattled crags and steep precipices of gritstone overlook the valleys, producing scenery of a stern and dreary, yet impressive, character.* A line of similar moors runs down the E. side of the limestone, between it and the Derby coal-field, the gritstone here having an easterly inclination, which, in a few miles, causes it to plunge beneath the latter. On tracing this branch of the millstone grit, however,

* The view from Ashop Head, the northern extremity of Kinder Scout, can hardly be surpassed for wild grandeur, an apparently illimitable bog stretching away on the one hand, while on the other you look, from among the massy rocks of gritstone, down a precipitous escarpment, on the little river Ashop, winding in its narrow dale a thousand feet below, beyond which nothing can be seen but moor after moor, alternately rising and falling, like the swell of a mighty sea.

towards the S. its elevation gradually becomes less, and the tract of country occupied by it less conspicuous, till it is entirely concealed by the new red sandstone at Morley, four miles N.W. of Derby. Its boundary will be approximately marked by that of the limestone as far S. as Wirksworth, whence it runs S.W. to Milford and Little Eaton. W. of this boundary, however, there is an outlier of it, as already indicated, lying in a depression of the shale, and on which the villages of Callow and Kirk Jreton stand. This isolated patch is surrounded on every side by shale, and is about three miles long from N. to S., and about $1\frac{1}{2}$ m. across. Its beds dip on all sides towards its central portion.—(See sections Nos. 2 and 3). The diminution in consequence of the millstone grit towards the S. does not seem altogether due to its diminution in elevation, but in part to a gradual thinning out and diminution of the formation itself, which is in accordance, I believe, with what is known of it in its course to the N. Before leaving this formation, there is a circumstance connected with this eastern part of it which demands our attention, which is, its being broken through in two places, and the inferior rocks brought up to the surface. These two places are Ashover and Crich. On leaving Matlock to go to Chesterfield, we perceive at Matlock Bridge the limestone dipping to the E. and passing under the shale which composes the next hill. This hill is capped with gritstone, which likewise dips to the E. but, instead of plunging regularly beneath the coal-field, in about three miles the wood reaches an abrupt escarpment, where the gritstone may be seen dipping rapidly to the W., and overlooking the valley of Ashover. This lovely valley is formed by an amphitheatre of gritstone hills opening to the S. and dipping from the valley on either hand. Beneath the gritstone, which, as usual, forms a very steep slope, with projecting crags, comes the more gradual outline of the shale, while the middle of the valley is occupied by a green ridge of limestone. The beds of this limestone dip from the centre on every side, at a moderate angle, passing underneath the shale, which, by a similar dip, underlies the gritstone. The heights of gritstone have an elevation of about 500 feet above the little river Amber at the bottom of the valley, which is there itself 500 feet above the sea, and which, to complete the loveliness of the place, and, as it were, to render it an epitome of the Derbyshire district, cuts transversely across the limestone ridge, producing the usual beauties of a limestone dale in miniature, and engrossing the toadstone for a considerable distance. Many lead veins traverse the limestone, which, upon the whole, preserve the same laws of direction that have

been remarked before, one set running N. and S., the other E. and W. one of the latter—the Gregory vein—was very remarkable for its richness, and has been followed for a considerable distance under the shale and gritstone hills to the W. at one shaft 360ft. of gritstone and nearly 500ft. of shale having been sunk through to reach the first limestone.* All the known veins are now worked out as far down as the toadstone, but should the difficulties attending the piercing of that rock in this situation ever be overcome, it is probable that mining operations will be resumed here with the same success as heretofore. To the E. of Ashover the millstone grit resumes its regular easterly dip, and very shortly passes beneath the coal-field. About five miles due S. of Ashover stands the village of Crich, on another still more remarkable upthrow of the limestone. This, instead of being a patch of limestone in the bottom of a valley, is a bold hill, overlooking all the adjoining gritstone, and commanding a magnificent prospect over the country to the S. and E. The height of its summit is upwards of 600ft. above the level of the Derwent close by, or probably between 1100 and 1200 above the sea. The limestone here forms a ridge about three miles long, and never more than $\frac{1}{2}$ m. across. The northern part of the ridge is by far the highest, and it slopes regularly down to the S. It may be said to consist of two parts, the one to the N. of the village, which runs magnetic N. and S. the other on which the village stands, the direction of which is about true N.W. and S.E. There is a slight curve in the strata between these two parts, as the beds immediately N. of the church dip N. while just beyond, where the lanes part, they dip S. There are, therefore, two points in the ridge from which the beds dip every way, the pillar called the stand marks one point nearly, while the church is about on the other. On the N. E. and S. of the ridge, the dip of the beds is moderate, varying from 10° to 30° , and passing regularly under the shale, which, again, is overlaid by the gritstone, both dipping every way *from* the hill. On the W. side, however, there runs a great fault, the direction of which is 23° W. of N. which cuts through a portion of both parts of the ridge, and passes through the market-place of Crich. Just to the W. of the church it brings down the gritstone close to the limestone, the shale being dropped out of sight; while W. of the stand it cuts through the limestone, and causes its bed there to dip to the S.W. at an angle of 65° .† At a greater

* The variations in the thickness of the toadstone here were noticed in the first part of this paper.

† This fault certainly produces a downcast to the W.; but at one or two

depth, indeed, it tilts the strata quite over; and where the Ridgway sough, which comes up from the Derwent, first strikes the limestone, the shale is dipping into the hill, or towards the E. instead of the W. with the limestone bent back overhead. A little farther N.W. the Pearson's Venture drawing-shaft, after sinking down through part of the shale into the limestone, they, in continuing the same shaft afterwards, pierced through the limestone and got into the shale again, showing the beds to be in the remarkable position given them in the section No. 3.

Crich cliff has long been celebrated for the number and richness of its lead veins. As might be expected where such violent disturbances have taken place, nearly all trace of regularity in the direction of these is lost. In fact, they cross each other at all angles, and run towards every point of the compass. It is remarkable, however, that they all hade (or dip) into the hill, the plane of the vein keeping as nearly as possible perpendicular to that of the beds; thus all the veins have a tendency to intersect each other in the centre of the hill, and many of them are found to do so, and I believe that some of those which run parallel to each other at the surface unite when they intersect, and do not again separate. It was in Crich cliffs that the first experiment of sinking through the toadstone was attended by success, in the discovery of the Glory Vein by Mr. Alsop. There seems to be some irregularity either in the number of beds or in the position of the toadstone at Crich, as the following sections of shafts, only a few hundred yards distant from each other, show:—

GLORY SHAFT.

Limestone, containing three thin beds of clay.....	38 fathoms
Toadstone*	8 do.
Limestone, to a clay called bearing clay	37 do.

Below which the sinkings were continued some depth without finding any toadstone.

places where I examined it in the Pearson's Venture Mine it was trading to the E. in which case it would form a very rare exception to an almost universal rule of considerable practical importance, "that a fault always trades or dips *under* the downcast part."

* In one part of the Glory Vein this bed of toadstone appears to have disappeared, leaving only two thin beds of clay in its place.

OLD END SHAFT.

Limestone	32 fathoms
Toadstone	8 do.
Limestone	26 do.
Toadstone	6½ do.

I was informed that one of the clays in the upper limestone of the "Glory" shaft thickened out towards the E. and became toadstone at the "Old End;" a circumstance which is believed also to take place in other parts of the limestone district, but which requires farther confirmation before it can be received as an ascertained fact. Many circumstances, however, unite to make some such irregularity probable, with regard to the upper toadstone at least.* The circumstance of portions of the mountain limestone being brought up to the surface wherever forces of disturbance have acted in a sufficiently powerful manner to break through the superincumbent rocks, is important, as showing us the continuity of the limestone formation; that it is not a mere patch existing only in that part of the district where it forms the surface of the ground, but that it extends under the adjacent country for some miles at least, without losing one of its usual characters, or at all diminishing in thickness or other qualities.

THE COAL MEASURES

Are the next group of rocks which engage our attention. They are, indeed, as before shown, only the upper part of that group of which the millstone grit is the lower, the division being one purely of convenience. It must necessarily happen, therefore, that the position of the one is in accordance with that of the other. Thus, on the W. of the county, where the millstone grit dips to the W. the coal measures of which it forms the base dip likewise in that direction. Of the narrow coal-field on the Cheshire side, this general position of the beds is all I know. On coming to the eastern tract of gritstone, we find, in like manner, when it passes beneath the coal-field, that the coal measures have likewise an easterly inclination. This easterly dip of the coal measures is true of the whole of the Derbyshire and

* The inquirer must be cautious in receiving the accounts of the common miners, as they not unfrequently call all clay lying between beds of limestone toadstone, because that rock is itself generally accompanied by clay.

Nottinghamshire coal-field in a general sense; but were it continued without interruption the district would have scarcely half its present width, since the whole of the beds would shortly be buried beneath superior strata. It fortunately happens, however, that there is a considerable flexure of the beds running down the middle of the district, caused by a line of elevation, which runs down from a little to the E. of Chesterfield, by Codnor, and thence, along the valley of the Erewash, to Stapleford. Along this line the beds have been bent up, so as to incline from it on either hand—(see section No. 1)—forming what is called an anticlinal line. By the effect of this line of elevation (which passes in the district under the name of the horseback fault) the beds, which had plunged to a considerable depth from their western boundary, are again brought up, or nearly so, to the surface, again to dip to the E. a little beyond; and thus a much greater quantity of coal than would otherwise be the case is kept within reach, and the width of the coal district greatly increased. Besides this remarkable dislocation, there are many other faults running across the coal-field. Some of these have a throw, as it is called, or produce a displacement of the beds to the amount of 270 feet, this amount gradually diminishing, in certain directions, till the fault either disappears or is crossed by another. It is very remarkable, and confirmatory of the views before taken of the elevation of the district, that the principal of these faults, as well as the anticlinal line mentioned above, run nearly N. and S. while others cross them in an E. and W. direction. It seems to be generally the case that, in the N. and S. faults, the beds on the E. side of the fault are those which are depressed, which, when the beds dip towards the E. has the effect of bringing the higher coals more to the W. or further into the field than they otherwise would be, which is another advantageous circumstance. Mr. Gratton, of Clay Cross, has published a map of considerable accuracy (as far as my examination has gone) of the outcrops of the five principal beds of coal, and several of the principal faults, but which requires some farther information to render it easily intelligible. The colours he uses represent the coals to which they are attached in the following section, the yellow to the E. of his map being the magnesian limestone, and a patch of green in the N.E. corner being a superior coal to any worked in other parts of the county.

	<i>yd.</i>	<i>ft.</i>	<i>in.</i>
Blue.....1. Upper hard coal	1	2	0
Bind, &c.	180	0	0
Brown.....2. Main soft coal ..	1	1	0
Bind, &c.	*16	0	0
Pink.....3. Deep hard coal	1	1	0
Bind, &c.	55	0	0
Yellow?...4. Furnace coal	1	0	0
Bind, &c.	50	0	0
Black?...5. Clod coal, variable, average.....	2	0	0
Bind, &c.	150	0	0
—————6. Buckland Hollow coal, or Morley Park } new coal	1	0	0
	459	1	0

A considerably greater thickness exists, but these are the beds best known. The upper hard coal lies at a depth of 37 yards in the neighbourhood of Ripley, while in the Shipley basin it has a depth of 60yds., both these places being rather on the western side of the coal-field, and shewing, therefore, how narrow it would be hereabouts were it not for the effect of the anticlinal line, since on the E. side of the coal-field the magnesian limestone rests almost immediately on this same coal.

If now, disregarding the minor variations, we look to the general dip of the coal measures, we shall find it to be to the E. till after a certain distance they are covered in that direction by the overlying magnesian limestone. The boundary of this formation will be marked on a map by a line drawn from Pebley Inn, in the N.E. of the county, round the W. side of the village of Barborough, and thence nearly due S. to Bolsover and Hardwick Hall. Here it enters Nottinghamshire, and proceeds, with a very irregular outline, by Teversal, Sutton and Kirkby in Ashfield, Annesley, Watnall, and Nutthall, to Strelley. From Strelley the line turns to E. by Bilborough to Radford. Along all this line the coal passes, with an easterly inclination, under the magnesian limestone, which has likewise a dip to the E. and thus, at first sight, the two formations appear perfectly regular and conformable. Upon an enlarged examination, however, this will be seen not to be the case. In the first place, the angle of dip of the coal measures sometimes varies, while that of the magnesian limestone

* This thickness increases towards the west to more than 30 yards.

remains the same. In the next place, seams of coal, which in some places are covered by the magnesian limestone, in others come out from underneath it, and have a great extent of other beds intervening between them and the course of the limestone, thus showing the strike, as well as the dip, of the two formations to be unconformable.* Lastly, many of the faults of the coal measures run up to the magnesian limestone, and affect the beds beneath it, without producing any alteration on that rock itself. The coal measures have frequently been traced under the magnesian limestone, but to what extent they go is left at present entirely to conjecture. The coal-field is bounded to the S. by a very irregular line, which runs from below Radford Church S. to Wollaton Park, then turns to the W. and runs close to the N. of Wollaton Church, and, after encompassing the village, returns to the S. nearly as far as the Nottingham and Derby road. Here it again turns to the W. and runs along the N. side of the Bramcote Hills to some quarries near a bridge over the canal, a little E. of the village of Trowel. From this point it returns again along the S. side of the Bramcote Hills, and through New Stapleford down to the old village of that name. Here it crosses the Erewash, and runs up its western bank, passing to the N. of Sandiacre into the village of Stanton. From Stanton it runs along the ridge between that place and Dale Abbey, from the W. end of which village it turns N. as far as the Spondon and Kirk Hallam road, when it turns short again to the S. and runs along the western side of that road into Locko Park, whence it runs N.W. to Morley. Along the whole line of country between Nottingham and Morley the beds of the coal measures still preserve their general easterly dip, but on approaching the southern boundary they invariably get a little bent up in that direction, so as to dip to the N.E. and consequently to basset or come to the surface towards the S.W. and this they would always be seen to do, were it not for the overlying beds of the new red sandstone. It is the common opinion that a great fault runs E. and W. from Nottingham to Stanton, and from Stanton to Breadsall; and this is marked in Mr. Gratton's map by straight lines in those directions. This opinion, however, requires some modifications. No great fault, in the common acceptation of the term, has ever been reached by the workings, and in many places the beds continue, without the inter-

* The strike of a bed means the direction of its run across the country, and is at right angles to its dip, or direction downwards into the earth.

vention of any considerable fault, to the S. of Mr. Gratton's lines, as, for instance, the coal found between the Bramcote Hills and Stapleford, and the Dale Abbey coal, the outcrop of which has been traced into Locko Park. Since, however, the beds rise to the S.W. it is evident that some great alteration must take place in that direction, or we should have the millstone grit rising into lofty hills to the S. of the coal-field, as it does on the west ; but from all the circumstances of the case it appears probable that the beds are depressed to the S. rather by several minor dislocations or changes of dip than by any sudden and violent disruption. In order to understand these circumstances better, let us first consider the position of the overlying beds of the

NEW RED SANDSTONE FORMATION.

The magnesian limestone, the lowest bed of this formation in the district, and the W. boundary of which has already been marked out, has, where it runs through Derbyshire from Barlborough to Hardwick Hall, a fine terrace* or escarpment facing to the W. and consisting of from 50 to 100 feet of the limestone, resting on a ridge of coal measures, which it has protected from the action of denuding forces. It has a very slight inclination to the E. which, in the course of a few miles, buries it beneath the superior beds of the red and white sandstone. Near Clown a portion of the magnesian limestone has been sunk through, and coal worked beneath it ; but these operations will not pay hereabouts until the neighbouring coal-field shall

* Projecting portions of this terrace have been seized upon as the sites of the fine old mansions of Bolsover Castle and Hardwick Hall. Annesley Hall, likewise, is near the edge of this formation, and the character of the country is admirably described by Byron in his " Dream :"—

" A hill, a gentle hill,
Green, and of mild declivity, the last
As t' were the cape of a long ridge of such,
Save that there was no sea to lave its base,
But a most living landscape, and the wave
Of woods and cornfields, and the abodes of men
Scatter'd at intervals, and wreathing smoke
Arising from such rustic roofs ;—the hill
Was crown'd with a peculiar diadem
Of trees, in circular array, so fix'd,
Not by the sport of nature, but of man."

have become more nearly exhausted. On tracing the formation into Nottinghamshire, it evidently becomes thinner as we proceed S. until about Nuthall its thickness does not exceed 30 feet; hereabouts it has been continually pierced, and the upper hard coal extracted from beneath it to a considerable extent. Between Nuthall and Bilborough, near a place called Chilwell Dam Farm, a small valley, through which a trifling brooklet runs down to the river Leen, cuts entirely through the magnesian limestone for 300 or 400 yards, and exposes a small patch of coal measures,* everywhere surrounded by magnesian limestone; and on the S. boundary of the formation, between Bilborough and Radford, it thins out entirely, not more than one yard of it having been met with in the coal pits to the S. of the road from Nottingham to Strelley. The extreme thinness of the magnesian limestone is, no doubt, partly due to denudation, some of the upper part of it having been washed away; but that it never was thicker than 20 or 30 feet at this end of its course, may be seen by tracing the run of the next superior beds, the red and white sandstone. The western boundary of this formation runs from about Worksop Manor, down through Cuckney, to the E. side of Mansfield; thence it gradually trends to the W. and at Annesley it actually overlies the whole of the magnesian limestone to its extreme edge, so that they both may be seen in one escarpment. From Annesley it recedes again to the E. runs round Newstead Abbey, and thence through Papplewick, and a little E. of Bulwell to Bassford and Radford. From Radford its course is that mentioned before as the S. boundary of the coal-field. Beyond this, its general course, however, there are some outliers of it near the escarpment of the magnesian limestone. Of these, Kimberley Knole is one, and another may be seen in Strelley Park. Beneath these we may be sure we have the whole thickness of the magnesian limestone, unless (which is highly improbable) the two should be unconformable, and this thickness is certainly not more than about 30 feet. The entire absence, moreover, of magnesian limestone in the new red sandstone district to the S. renders it probable that it thinned out and ended originally about its present southern boundary. This being the case, the existence of outliers of red sandstone lying but a little distance above the coal measures, and within the district where coal

* In the cutting of the new railway to Babbington Colliery the base of the formation is exposed, and contains some beds of a brown conglomerate, in which are large pebbles of mountain limestone, with crinoidal remains.

is got, prepares us to expect to find the same formation lying, in a similar manner, more to the S. upon the coal measures themselves, without the intervention of any magnesian limestone. One outlier of this kind forms a small hill to the S.W. of Strelley; it consists of fine, red, soft sandstone, capped by a hard, dark conglomerate, exactly the same as that of the Bramcote Hills, which also consist of red sand at their base. On the W. side of this hill, near Shaw's plantation, a coal pit was sunk through 20 yards of the sandstone, which may be traced to the S. lying immediately on the coal measures, as far as Trowell Moor, where it has thinned out and disappeared. From an examination of the country, it is evident that the beds of this outlier once stretched entirely across the valley through which the canal goes down to Nottingham, and that the outlier itself was a continuous part of what are now the Bramcote Hills, and that all the Wollaton coal-field was then covered by new red sandstone, from Radford to Bramcote and Strelley. If, moreover, we examine the very irregular boundary line of the new red sandstone along the south of the coal-field, we shall see that that formation must have once covered more of the coal-field in that direction than it does at present. In either case there is proof of great denudation, and that large portions of the new red sandstone have been swept off and washed away, leaving the coal measures exposed at the surface. The mere presence, then, of new red sandstone where we now find it, by no means argues the necessity of their being no coal underneath, nor that of any great fault separating it from the coal measures; and it is almost certain that many of the present workings will be carried on, to a slight extent at least, underneath the new red sandstone, and beyond what is now conceived to be the boundary of the beds.* It would be unwise, however, in the present state of our knowledge, to set on foot any undertaking (other than a mere extension of the works now going on) in search of coal to the S. of its present known boundary, since the new red sandstone so entirely masks the beds as to reduce us to mere conjecture as to their position. If now we trace on the boundary of the new red sandstone, from where we left it at Morley, we shall find it running to the S. as far as Breadsall, and thence crossing the Derwent to Darley and Allestree. It then passes by

* As, for instance, at Trowell Moor, the beds which they are now working, I believe, either under the Bramcote Hills or even to the S. of them. A very pretty instance of new red sandstone lying horizontally on an inclined coal grit may be seen in a quarry by the canal side, near Trowell.

Quorndon, and keeps along the ridge that runs from that village towards Turnditch, where it may be very well seen at the top of the hill, by the Cross Hands. Hence it runs by Hulland and N. of Bradley to Ashbourne. All the country (except one or two spots to be mentioned presently) to the S. of the line now pointed out as running from Nottingham to Ashbourne, as far south as the Trent at least, and often farther, consists of one member or other of the new red sandstone. The first or uppermost, "the red and white marls, with gypsum," keep in general to the S. of the Trent, but cross it at one part, and form the rock next below the surface all about Chellaston. Marls and sandstones, lying immediately beneath the gypsum beds, stretch over all the S. of the county towards Burton and Uttoxeter, and are also found about Derby and Chad-desden; but the country between Nottingham and Locko Park, as also between Kedleston and Ashbourne, is formed of the second division, the red and white sandstones. This rock is sometimes a deep red, sometimes yellow or nearly white, and sometimes mottled; it is occasionally a soft, friable sand, sometimes a hard rock, frequently full of quartz pebbles, which, according to the state of the rock in which they lie, are either loose, like gravel, or compacted into a hard conglomerate. These pebbles have sometimes so little sand among them as to seem precisely like a recent gravel; but, from several circumstances, I believe much of this gravel to belong really to the new red sandstone formation. In the first place, there are *no* chalk flints or pebbles of any rock newer than the new red sandstone. In the second place, it is generally found on the summits of hills, and it is almost invariably within the borders of the new red formation, into which it often passes by insensible gradations.* It is seen chiefly along the northern border already mentioned, and on the S. bank of the Trent, about Repton. The dip of the beds of the new red sandstone is, for the most part, insensible to the eye; there is no doubt, however, that they have a gradual inclination, by which the one part is brought to pass beneath the other. From the comparative irregularity, however, of the formation, it sometimes happens that parts of it are wanting, and that the presence of the superior beds by no means absolutely warrants the existence of the inferior below them in particular situations.

* This gravel, as well as much of the yellow sand which accompanies it, I have mentioned, in the former part of this paper, when speaking of the gravel about Hulland and Bradley, as diluvium, but, after examining the new red sandstone of Nottinghamshire, I have seen my error.

We return now to the investigation of the position of the beds below the new red sandstone, which we broke off in order to describe that formation, but, instead of confining ourselves to the S. border of the coal-field, we will take the whole of S. Derbyshire. It is evident that, beneath the new red sandstone in the whole of the S. of Derbyshire, some part or other of the carboniferous system lies concealed, because those rocks, as they pass under it on the one hand along its northern border, reappear from under it again to the S. in Leicestershire. It remains for us to discover under what part of this new red sandstone there is a probability of finding the upper part of the carboniferous system, or the true coal measures. If we begin at Wirksworth, we can trace the limestone shale down to Ideridge Hay, from whence we may walk on it, by Biggin and Agnis Meadow, to Ashbourne Green on the one hand, and by Whidley and Milford to Breadsall on the other. Everywhere it passes to the S. under the new red sandstone, from beneath which it peeps out at two detached places, near Langley and at Wild Park, near Brailsford. We may, then, be perfectly certain that, in all the country bounded by lines drawn through Wirksworth, Ashbourne, and Derby, there is not the most remote probability of coal being got.* If we attend to the position of the limestone shale at Langley and Ashbourne Green, we shall see it rising to the S.W. which would induce us to expect to find lower rather than superior rocks in that direction, which expectation is remarkably confirmed by the existence of a knob of mountain limestone, which peers above the new red sandstone at Birchwood Park, about five miles S. of Ashbourne. This is a slight elevation, about 300 yards long and 150 broad, and consists of thick beds of mountain limestone, which dip in every direction from a central point, at an angle of 45°. It is surrounded on all sides by new red sandstone, and is evidently the top of a conical hill, like Crich, except that it springs from a lower level, and accordingly is almost entirely concealed by the red sandstone, which spreads around it. Further S. about Cubley, are some beds of gritstone, which may possibly be millstone grit, but which I suspect to be hard

* Some persons, deceived by the resemblance of the limestone shale to coal measures, and by the occurrence of nodules of coal in a diluvial clay near Biggin, have been induced to sink and bore for coal between Ashbourne and Turnditch—an absurdity, from the expense and disappointment attendant on which the slightest knowledge of the structure of the district would have saved them, and which sufficiently shows the want of a greater spread of a correct geological knowledge.

parts of the new red sandstone. At all events, the existence of the mountain limestone at Birchwood Park makes it highly improbable that any coal is in the immediate neighbourhood, and almost certain that there is none between there and Ashbourne. If we trace the E. side of the limestone shale from Turnditch to Breadsall, we shall find it spreading out towards the S.E. In this direction, also, the millstone grit, which is the base of the coal measures, runs, which circumstance, taken in conjunction with the N.E. dip of the coal measures about Dale Abbey, renders it probable that the limestone shale lies immediately under the new red sandstone for some distance to the S. and E. of Derby; and that, if the coal measures pass under the new red sandstone without any sudden downcast to the S. but merely by an alteration in their dip and gradual lowering of their level, they will still be found to sweep round to the E. and that they will be sought with greater chance of success in Nottinghamshire rather than in Derbyshire, to the S. of the present boundary of the coal-field. It is remarkable that the first part of the carboniferous system we meet with, when it reappears to the S. from beneath the new red sandstone, is the lowest part—the mountain limestone of Ticknal and Calke.* And this circumstance seems to render it highly probable that by far the greater part of the new red sandstone in the S. of Derbyshire conceals only the inferior part of the carboniferous system. That mountain limestone and limestone shale, or millstone grit, but chiefly the two former, compose the substratum, and are in similar positions to what we see them elsewhere, namely, in alternate elevations and depressions; and that over this uneven surface the new red sandstone has been deposited horizontally, leaving one or two of the highest points uncovered by its beds. Under this view the northern part of the Leicestershire coal-field must be looked on as the connecting link between the Derbyshire coal-field on the one hand, and those of N. Staffordshire and Cheshire on the other; this Leicestershire coal-field being only apparently divided from the rest by an old valley or depression, partly due, perhaps, to ancient denudation, which has since been filled up by new red sandstone.

We have now, then, ascertained the certainty of the supposition with which I begged the reader to set out, namely, that the mountain limestone is continuous over the whole of Derbyshire at the

* Except a small patch of what appears to be millstone grit at Stanton, by the bridge.

least. Towards the S. we have traced it into Leicestershire ; but in this direction it appears to be thinning out, and no doubt shortly ends. To the W. it runs some distance into Staffordshire, and indeed all across it into Cheshire, as it may be seen reappearing from under the gritstone hills near Congleton. To the N. it passes under the shale and gritstone, from beneath which it reappears in Lancashire and Yorkshire. While to the E. we find it, after passing under the shale and gritstone for some miles, reappearing at Crich and Ashover without any appearance of diminution, and again passing regularly under the coal-field to the E., beneath which it runs to an unknown extent ; but, even supposing it to thin out in this direction as fast as it does to the S. it must run for some distance into Nottinghamshire. The whole of Derbyshire, then, is based on mountain limestone, which, after forming the surface of the districts before described, sinks down on every side, and is covered by coating after coating of the superior rocks, the limestone shale, the millstone grit, and the coal measures. All these are always conformable to each other, each dipping (in the same places) in the same direction and at the same angle, and being, in fact, only different parts of one compact and continuous mass of rocks, all the four insensibly melting, as it were, into one another, and forming one whole. Of this whole, however, large quantities of the upper parts have, in different places, been stripped off, and thus the lower portions are exposed to view, and there seems, to a casual observer, to be no connection between the two. This stripping off has chiefly taken place in the central part of the district, where the greatest amount of upheaving force was exerted, and consequently the rocks more shattered and rendered an easier prey to the denuding powers, whatever they were ; while, as the beds sink down on every side, higher and higher rocks continually mantle round, and have been preserved, by their comparatively slight elevation, from this denuding action. Whenever any part, however, of this mass of rocks sinks below a certain level, if it be on the outskirts of the district, it is sure to be covered by one part or other of the next superior mass of rocks, the new red sandstone. These are equally conformable amongst themselves, and equally melt one into another, but the different parts are more irregular in their thickness and extent ; so that one sometimes thins out and ends altogether, while the rest continue. But if now, disregarding the parts of which these two classes of rocks are composed, we look upon the carboniferous system and the new red sand-

stone system as individual things, we shall see that there is a break or unconformability between the two. The beds of the carboniferous system dip sometimes at a considerable angle, while those of the new red sandstone lie over them nearly or quite in an horizontal position; and the new red sandstone does not lie only above the uppermost bed of the carboniferous system, but also on any of the lower ones that come within its range when the upper are absent.— This teaches us that between the formation of the two there was an interval, during which the beds of the carboniferous system were broken up, and some of them stripped off and washed away, and that, upon the irregular surface thus formed, the new red sandstone was afterwards deposited in a smooth and tranquil manner. If now for a moment we look from effects to their cause, and let the facts we have briefly examined speak for themselves, they tell us that, over all this district which is now the county of Derby (and did we extend our examination we should be obliged to extend our expression to nearly the whole of England), at the remotest period to which we can trace its history, there existed a deep sea. In this sea abundance of animals lived, and moved, and had their being, peopling its tranquil depths with the happiness of existence, the old gradually dying, the young coming into life, life frequently cut short by accident or violence, everything, in short, proceeding as we know the business of existence now to proceed in similar situations. How long this state of things lasted we know not, but sufficiently long for beds of limestone many hundred feet thick to be deposited, and for generation after generation of these creatures to be born, to live their appointed time, and perish one after the other, each race leaving its relics entombed in the successive beds of rock that gradually accumulated at the bottom of the sea. At what rate limestone is formed we cannot tell, but, even under the most favourable circumstances, since we know it to be rather of the nature of a chemical precipitate than a mechanical deposit, and as in far the greatest thickness of the mountain limestone there is no appearance of anything like mud or sand that could have been swept in rapidly from neighbouring lands, the period of time required for such an immense deposit must have been something enormous. At one, and in some parts two periods, we know, indeed, a sudden accession to have taken place by the outpouring on the bed of the sea of a considerable thickness of melted rock or lava, which, when cooled down and covered by other beds of limestone, became what is now called toadstone. But even here we have proof of a lapse of time, because,

immediately above the surface of the toadstone, we frequently find numerous shells, as evidently as elsewhere in the position in which they lived and died; and the limestone that lies upon the toadstone does not differ from other beds, and therefore the lava must have time to grow cool before any of the superior beds were deposited upon it. As we should expect, we find the upper beds of the limestone, or those which were deposited when the sea became shallower, more abounding in animal remains than the lower; for we know that at present comparatively shallow seas more abound with animal life than the extreme depths of the ocean. In these higher beds we first find traces of the diffusion of mechanical detritus in the presence of partings of shale, which begin to separate the beds of limestone; and this increases until there is a pretty equal and regular alternation of beds of limestone and shale. Hereabouts, too, it is not unfrequent to find beds of fragments of shells, as if drifted along by currents. But here again we see proof of the lapse of time, since there must have been alternate periods, in one of which currents swept down fine mud into the sea, and deposited it in thin layers, and in the other a time of tranquillity, in which limestone was precipitated. These alternations, too, are very numerous, since beds about 100 feet in thickness are thus constituted, each layer rarely exceeding 1ft. 6 inches. Gradually, however, the mud-bearing currents increased in frequency, and the limestone becomes of more rare occurrence, till at length it entirely ceases, and with it almost all trace of animal existence. Still the deposition must have been slow, since the laminae of the shale are of paper thinness. After two or three hundred feet of shale had been deposited, the currents increased also in strength, and became capable of sweeping in fine sand, which formed the beds of gritstone that begin to alternate with the shale in its upper portion. Another hundred feet of alternations of shale and gritstone now succeeds, in which the beds of grit gradually increase as we ascend, until at length we find great thick masses of gritstone, with merely thin beds of shale between them. In these thick masses of gritstone we see every mark of a much more rapid accumulation; coarse grains, and even small pebbles, have been swept along, false bedding, or the heaping of layers of sand in sloping positions, continually occurs, and everything denotes the presence of rapid currents sweeping in quantities of mechanical detritus from no very distant shores. This idea, moreover, is strengthened by finding the impressions or the trunks of broken plants, in a rude

state of preservation;* and it is among these gritstones that we find first traces of beds of coal. Beds of coal are formed of masses of vegetable matter, which being probably diffused over wide areas of water, to the bottom of which it gradually sank, and undergoing a kind of process similar to fermentation, in which probably heat was generated; and being also compressed by the weight of other matters, by which it got gradually covered, has at length been converted into coal. For the equal diffusion of sometimes very thin beds of this vegetable matter over extremely wide areas, some length of time must certainly be allowed. An equal thickness of shale would take, perhaps, less time, but even that we see to have been slowly deposited, on account of the thinness of its laminae. Gritstones we may judge to have been slowly or rapidly accumulated, according to the fineness or coarseness of the material, their deposition, in every case, being probably more rapid than the shale. Of these three things, namely, shale, gritstone, and coal, the whole of the coal measures are made up, in indefinite and almost innumerable alternations, to the thickness of 2000 feet.

The time required for any regular system of operations by which such a succession of events could have been brought about, could not but have been considerable. Such must have been the means by which the carboniferous system of rocks was produced, and, even under the most favourable circumstances that we can conceive, it must have been the work of many, many ages. But we have made no allowance for periods of rest, during which nothing was deposited. There must have been *some interval* between each successive bed, though of how great duration we cannot tell. If we look, too, at the change produced during the formation of the whole, our idea of the time occupied will be still farther enlarged. We find a tranquil and deep sea to have been gradually filled up, or at least so altered as for currents to drift along its bottom, and for the animals contained in it to have become extinct, and at length for creatures belonging to fresh water to exist over its area.† The physical geography of this part of the globe must have undergone some impor-

* The great fossil trees—the occurrence of which in an inclined position, and apparently piercing through many beds of sandstone, seems to puzzle so much a certain class of geologists (by courtesy so called), whose minds are more fitted to the discovery of petty difficulties than the reception of general truths founded on large bodies of evidence—are always found in these irregularly bedded and comparatively quickly formed gritstones.

† This is shown in the “muscle bands” of the coal measures.

tant change during this period ; and unless the laws of nature were very different in those days from what they are at present, which we have no right to assume and no reason to believe, we know that this must have been a work not of hundreds, scarcely even of thousands of years. During all this period we have no instance of disturbances taking place in this district ; an ejection of igneous rock over the bed of the sea certainly occurred, but there is no trace of its having been accompanied by any violent dislocating force ; there are no dykes, no veins even, of solid toadstone running into the limestone.* After the last of the coal measures were deposited, however, this district, in common with all the neighbouring ones, in the W. of Europe at least, came to be violently acted upon by upheaving and dislocating forces. Large portions of the previously level bed of the sea were lifted up, many fissures, both large and small, were formed in obedience to the mechanical laws, faults and veins being their result, and many beds, when not broken through, were bent and contorted in various directions, but still, no doubt, under the regulation of similar laws. This violent disruption of the bed of the sea,† whether it took place suddenly, or, as is to my mind more probable, was a comparatively slow and continued operation, would no doubt cause great currents to act upon the broken strata ; and we find accordingly that great denudation, or washing away, of immense quantities of the previously formed beds, has taken place either during this period or subsequently, and many of the present valleys of the country were certainly begun at this ancient time. However long these disturbances may have continued, however, we find that at length they nearly or entirely ceased, and that portion of the district which was still covered by water again began to deposit new materials. On the E. side of the district there was a sea, in which limestone was again deposited, but mixed to a greater or less extent with sand and mechanical detritus, and containing also magnesia. Some parts of it, however, were sufficiently clear for the deposition of pure crystalline limestone and the existence of animal life, since about Bolsover and near Kirkby, in Ashfield, a few beds of carbonate of lime, containing shells, are found ; others, again, were agitated by currents sufficiently strong to bring in pebbles of

* The toadstone clay is frequently found to have come down some distance into the lead veins, but that it would do now were a new fissure formed.

† Or what at least had been the bed of the sea, and was then covered by water, either fresh or salt.

mountain limestone. After the magnesian limestone was deposited, this sea contained nothing but sand and pebbles, or at least nothing that has come down to us ; great beds of sand, full of round pebbles, which must have been swept in by very strong currents, are the only things it deposited. At this period we may suppose the hills of Derbyshire on the one hand, and those of Leicestershire on the other, to have been dry land, or at least a very shallow sea, studded perhaps with islands, while between them ran a deeper straight, in which the sea deposited its sand, and afterwards the marls and gypsum. These beds, forming what we call new red sandstone, never reach above a certain level, but sweep round the outskirts of the high lands, and conceal with their horizontal strata all the hollows and inequalities that, but for them, might exist in the intermediate spaces. They are never, moreover, broken by the faults and dislocations that affect the inferior beds, which shew all these breaks to have happened between the period of the deposition of the coal measures and that of the new red sandstone. As to the history of the district since the new red sandstone period, we are left altogether to conjecture ; we only know that in other places the rest of what are called the secondary rocks, and all those called tertiary, have been deposited. Both of these contain several systems of rocks, each requiring periods of time for their formation proportionate to the vast mass of materials of which they are composed, and to the numerous and great changes which have taken place in organic life during their deposition. At a very recent period (geologically speaking) a deposit has taken place over part of the district, more especially the S. of loose and water-worn materials, the broken fragments of sometimes distant rocks forming what is termed the diluvium. The precise method, however, by which this transport took place, any farther than that it is undoubtedly due to strong currents of water, is uncertain. At a period about the same as this we know parts at least of Derbyshire, in common with much of the rest of England, to have been the habitation of the Mammoth, the Rhinoceros, and numerous other animals that are now entirely extinct, or confined to other regions of the earth. From the close of this last period the history of the district becomes identified with that of the human race. Man comes to take possession of the lands thus wonderfully formed, and thus admirably adapted for his convenience. He is content for a time to enjoy the advantages afforded him by the structure of the earth and the disposition of the materials, so highly conducive to his comforts and enjoyment, without a thought as to

their origin, or the numberless circumstances which have been made to conspire to such beneficial ends. His curiosity, however, at length cannot fail to be aroused; and after long stumbling, and many attempts to jump to conclusions without examining premises, he finds that by the plain, simple, and unfettered exercise of those faculties of observation and reason which have been given him for the purpose, he can arrive as certainly at a knowledge of the wonderful, the unthought-of mechanism, by which the structure of the earth has been produced and is sustained, as by the exercise of the same faculties he had previously arrived at the knowledge of the mechanism by which the structure of the universe is continually upheld.

DESCRIPTION OF THE SECTIONS.

No. 1. is a section taken E. and W. nearly in a straight line, through the places mentioned above it, from Cheshire, across Derbyshire, into Nottinghamshire.

No. 2. is a section at right angles to No. 1, or running N. and S. nearly.—
It bends, however, a little to the E. of S. and does not run exactly in a straight line, in order to take in the most interesting points.

The faults in these two sections, which are made to break the mountain limestone, must not be understood as all actually existing in the places in which I have put them. Some of them, indeed, are inserted on the authority of Mr. Hopkins, and are correct; others are merely probable. The reason for their insertion was to show the way in which the limestone is fractured, and the toadstone brought up to the surface at different points, without regarding accuracy in the situation of these points and fractures, which could only be preserved in sections on a much larger scale, and constructed with great care and labour.

No. 3. is a section running about N.E. and S.W. from Crich to Ashbourne, being a much shorter distance than the others. The principal flexures in the limestone shale are shown, but there are probably others which are not noticed.

No. 4. is a section across the interesting valley of Ashover.

All the sections must be understood to be very rough representations of the actual facts. They are drawn to no regular scale, either as to height or length, but preserve pretty nearly the relative distances between the places; while the features of the country, and the relative heights of the hills and depth of the valleys, are given from recollection or guess. They will be found, however, I hope, to give a correct idea of the relative positions of the rocks.

In No. 1. the faults in the coal measures, &c. are neglected, there existing not the same reason for their insertion as in the mountain limestone.

OBSERVATIONS ON THE ANIMALS INHABITING MULTILOCLULAR SHELLS,

CHIEFLY WITH A VIEW TO THE GEOLOGICAL IMPORTANCE OF THE SUBJECT.

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AMONG the numerous forms of animal life with which the ocean abounds, there are few which an ordinary observer would be more likely to neglect, or even avoid with disgust, than the shapeless-looking masses called Cuttle-fish. These Cuttle-fish are to the geological naturalist among the most interesting inhabitants of the sea; for they form a link between the past and the present, resembling in their organization those animals which must once have inhabited the numerous genera of extinct multilocular shells, of which *Nautilus* only remains: a necessary guide to point to those analogies, which, without it, could have been at the best mere gratuitous assumptions.

The class of animals to which all these are referred is called *Cephalopoda*, from two Greek words* signifying their manner of locomotion. This is very peculiar; for around the mouth extend a number of arms or feelers, which serve at once to take prey and convey it to the mouth, and also act as organs of locomotion: so that the feet, if we choose so to call these feelers, do actually proceed from the head, and the applicability of the name is at once seen. Now these cephalopodous molluscs—for they belong to Lamarck's class "MOLLUSCA"—are equally remarkable for the apparent simplicity and real complexity of their organization. Under a form resembling that of a simple Polype is hidden a rudimentary vertebral column, an approximate cranium, organs of digestion far more nearly resembling those of vertebrated than invertebrated animals, and, above all, a nervous system so highly developed that all the principal parts have acquired the form and situation which they preserve throughout the higher classes, up to man himself.

To trace the changes of form in the habitation of these singular animals, and the probable changes of structure which caused them—to direct attention to the importance of the subject to the geologist—

* κεφαλη, a head, ποους, a foot.

and to tempt the miscellaneous reader to a search after truth in this obscure but deeply interesting subject—are the objects aimed at in the following pages. Few, even among geologists, seem inclined to view the subject in all its extent and importance, and little has yet been done to collect and arrange the scattered knowledge there is on the subject. If in this attempt the analogies should appear strained or fanciful, let them be fairly dealt with, and not too summarily dismissed, for it is only by a view of the subject at once extended and minute that we can hope to arrive at just conclusions; and it must not be forgotten that we are engaged in an investigation where there is but little light to guide us, although that little is fortunately well defined, and cannot easily mislead. We proceed to describe shortly the real nature and extent of our knowledge, by explaining some points of the comparative anatomy of the known animals of the class, as they have been elucidated by Mr. Owen and other excellent anatomists.

The arms or feelers, extending from the aperture of the mouth, have been already alluded to as the organs both of locomotion and prehension. Formed for this double office, they are muscular and very strong, and provided with a series of suckers, by means of which any prey that may be taken is forcibly held, and readily conveyed into the mouth.

As the prey thus obtained seems to consist chiefly of small crustacea and the animals inhabiting shells, there is a provision made for the mastication of such unpromising food in a system of powerful muscles connected with the mouth. Besides those at the entrance of this organ, we find strong retractor muscles of the jaws inserted round the opening of the cranium; while the bases of the jaws are surrounded with successive strata of compressor muscles, and the tongue is covered with sharp conical spines, and moved by strong muscles attached to a rudimentary bone at its root.

The jaws themselves are hard and powerful, resembling much in appearance the beaks of a Parrot. They move vertically up and down, and not (as in other animals belonging to lower classes in organization) transversely. They are often found fossil, and are, as may be imagined, admirably adapted to crush and grind those hard shelly defences which few other carnivorous inhabitants of the sea are able to break through.

Connected with this apparatus of the mouth, there are found numerous secretory glands, to assist in the digestion of the food; a large liver, divided into lobes; and more than one stomach, the

second provided with a muscular gizzard somewhat resembling in structure that of the crocodilean reptiles and rapacious birds.

The nervous system of cephalopods shows more clearly than any thing else the near approach of the class to the vertebrata. We find a distinct brain, sometimes divided into lobes, enclosed in an organized cranial cavity; numerous symmetrical ganglia are developed on the great nervous axis, both before and behind that organ, and sympathetic ganglia are observed in the abdominal cavity. "So that, although the brain of the cephalopods is still perforated by the œsophagus, as in all the inferior classes, we find all the principal parts of the nervous system of the vertebrata already developed in this class; and after undergoing a series of changes of form and position in the inferior tribes of animals, regulated by the general development and form of the body, they have here acquired the form and situation which they preserve throughout all the higher classes."*

Having thus given a kind of outline of the most important points in the comparative anatomy of these animals, we now proceed to consider the structure and importance of those shells, whether external or internal, which are, in most cases, the only means left us to determine the nature of the animal once their possessor. In this part of the subject great caution is necessary; for there is danger both of giving undue importance to minor points, and also of neglecting some of those minutæ which sometimes really indicate a change of structure to a considerable extent.

The parts of cephalopodous animals found fossil consist of the shell, the jaws, and occasionally a kind of bag, or *pen* as it is called, which once contained a thick black fluid, to serve as a defence to its possessor, just as in our own seas the Squid, or Cuttle-fish, darkens the water about it, by a similar fluid, when it is desirous of escaping from an enemy. Of these remains it will be necessary to consider carefully the nature of the first—the shell, as it is by far the most commonly preserved, and seems to be, in many respects, the most clearly indicative of the nature of the animal inhabitant. In the absence, also, of a more definite knowledge of the habits and appearance of this inhabitant, the shell remains the only means of classification.

The structure of all the shells of this class of animals is always more or less cellular. In some, as the Cuttle-fish, the internal calcareous skeleton (employed in the composition of tooth-powder and

* *Outlines of Comparative Anatomy*, by Dr. Grant, p. 221.

pounce) is apparently solid, though, even in this case, it is made up of plates of carbonate of lime intersecting one another, and forming an indefinite number of minute cells filled with air; thus making an apparently stony substance really light and friable. In others, again, as the minute internal shells of the microscopic cephalopods, we find the cellular structure more clearly developed, and forming a succession of chambers very numerous, indeed, but not innumerable. In these there is a connection between the chambers by a simple aperture, and their use seems to be shown by their approximation to bony structure giving a solid frame-work, to which the muscles can be attached; and at the same time, by the quantity of air in the chambers reducing the specific gravity of the whole animal, so as to allow of its floating near the surface, or at a proper depth of water.

Lastly, we have a shell constructed like a *Nautilus*, in which there is a succession of chambers, with a tube running through all of them, and passing into the animal itself, which in this case lives entirely in the outer chamber, and as it increases in size continually enlarges its house, and adds another to the empty rooms which it once inhabited.

Now it must be observed that the highest in order of organization of all these cephalopods, is that group with an internal cellular skeleton like the *Cuttle-fish*; and this is indicated by the way in which this skeleton is put together. It consists of numerous nearly flat layers placed within each other, the first formed being at the outer part and posterior termination of the shell, and the succeeding new layers extending always more forwards than the edges of the old. These compressed layers are connected together by numerous very minute tubular fibres; so that in this internal laminated shell there is a structure intermediate between that of the external multilocular shells of the less highly organized genera, and that fibrous cellular substance which is called bone in animals of higher organization.

It is not, however, with remains referred to this group that the geologist has most to do. They are useful to him, indeed, in the way of analogy, but either they did not exist in the ancient seas, or the friable skeleton was not of a nature to be easily preserved under ordinary circumstances. It is the shells resembling *Nautilus*, such as *Ammonite* and its congeners, whose abundant remains are presently to come under our consideration.

But first it may be worth while to inquire how it is that animals so high in their organization, and once so very numerous as the *Cephalopods* undoubtedly were, could have vanished so entirely as they seem to have done, without leaving some hiatus in nature. There is,

however, a vitality in nature's arrangements, and a principle of compensation, which quite precludes any danger of this kind. Dr. Buckland suggests that the carnivorous Trachelipods might have supplied their place, and quotes the observations and opinion of Mr. Dillwyn to show the probability of this substitution. Mr. Dillwyn observes that all the herbivorous marine Trachelipods of the older strata were furnished with an operculum, as if to protect them against the carnivorous Cephalopods which then prevailed abundantly; but that in the tertiary formations numerous herbivorous genera appear which are not furnished with opercula, as if no longer requiring the protection of such a shield after the extinction of Ammonites and other powerful enemies of that class. Dr. Buckland remarks upon this that we may see good reason to adopt the conclusion of Mr. Dillwyn, "that in the formations above the chalk the vast and sudden increase of one predaceous tribe has been provided for by the creation of many new genera and species possessed of similar appetencies, and yet formed for obtaining their prey by habits entirely different from those of the Cephalopods."

We may add that during the tertiary period, at least the earlier part of it, one genus of these, the *Cerilhium*, existed in most extraordinary abundance and variety, probably clearing away the exuberance of life which must at that time have characterized the country now forming the richest and most thickly peopled districts of France.

However, be the explanation as it may, the fact is undeniable.—The Cephalopods *have* diminished in abundance. Instead of being the most common, they may now be ranked amongst uncommon animals; and the perfect stability of nature in this really most important change is a remarkable instance of the power of adaptation in the economy of the world to every variety of circumstances and every alteration of the conditions of life. No sooner is the pressure, as it were, taken off by the gradual or rapid removal of a class of predaceous animals, than another starts up to take its place. No sooner does a species become scarce than want of food also reduces the number of its enemies; and thus the great laws which govern the world act harmoniously, and in dependence on each other, never deviating far from the strict and definite line drawn by the unseen hand of the Great Guider and Director of these laws.

Proceeding now to the question of more importance—that of classification, we must first direct attention to the difference in structure which separates all the real chambered shells into two great orders, named by M. D'Orbigny the Siphonifera and Foraminifera. There

appear to be many well-marked natural differences between these two groups, although the ground of separation may not seem very clear, as it depends on the nature of the aperture leading from one chamber to another. More, however, is meant by this, than a stranger to the nomenclature might imagine; for it includes, in a great measure, the consideration of how the animal and its habitation were connected and dependent on each other. If, for instance, the apertures between the chambers are in regular succession, and (as they commonly are) produced a little way beyond the septa or walls, forming a succession of short tubes, we at once conclude that a tube has passed through all of these, connecting the body of the animal with the very first chamber formed. This we assume by analogy, from what we know of the anatomy of the *Nautilus*. On the other hand, if there is merely a set of irregular holes in the walls of separation, we see that there could not have been any such communication; and it follows, almost as a matter of course, that the shell was altogether internal, and useful chiefly as a float. There are other differences between the two orders, which will be hereafter considered. It is enough at present that they should appear clearly separate, and that not only by the shell, but, as far as we know, by the structure of the animal.

Let us begin, then, with the Siphonifera; and in order that the nature and uses of the siphuncle may be fully understood, let us trace the history of an individual belonging to a known genus, as *Nautilus*, from the first development of the shell to the period of its attaining that complicated form which well entitles it to the name of multilocular, or many-chambered.

That part of a shell-bearing animal upon which the shell is formed is a loose, muscular coat, provided with numerous glands for the secretion of calcareous matter, which, on being exuded, hardens, and becomes, in fact, the shell. The rudiments of this defence—which, however complicated it may be in the full-grown individual, is always simple in the early part of its existence—are found in the egg; and there is every reason to suppose that the animal of *Nautilus* is, at the time of its first exposure to the water, covered with a cup-shaped shell corresponding to the form of the animal. The attachment to the shell is partly by two muscles at the sides, and partly, doubtless, by that siphuncle which we have already alluded to, and which proceeds from the region of the heart, passes through some important viscera, and passes out through the mantle, to be attached to the end of this first chamber. This siphuncle is provided with an artery, and seems to retain its vitality during the life of the animal. It may

be imagined that, being connected with the animal, it must necessarily live or die with its owner; but this is not always the case. Muscular fibres extend from parts of the Pinna, and other molluscs, which, when beyond the shell, lose all their vitality, and become mere strings of attachment, without feeling or sensation of any kind. Of course, before any very long time has elapsed, the little inhabitant will have grown too large for his cell, and be ready for other and wider accommodation. In order to obtain this, there seems to be a process analogous to that of casting the shell in crustacea; but, instead of a complete separation, the siphuncle remains fixed, and being, perhaps, itself grown, and also a little extensible, it allows the body to be removed to the wide-open end of the shell. Immediately upon this there is a fresh accumulation and exudation of shelly matter, increasing the shell in magnitude, and depositing, besides, a wall separating the original habitation from the new dwelling of the animal. It is clear, however, that since the mantle is pierced where the siphuncle emerges, there will be in that place a corresponding aperture in the wall; thus forming an air-tight chamber, with a tube passing through it. This process of enlargement being repeated an indefinite number of times, we obtain the complete shell, consisting of a number of empty air-chambers, with the tube passing through all of them. The cup-like form of the animal accounts for the shape of the septa, and the part of the septum where it has the aperture left for the siphuncle is one very useful character for distinguishing genera.

Now if the siphuncle were merely an organ of attachment by which the animal was kept in its place during the formation of new shell, although it might still be an important point to know its situation, there would be little interest attaching to it. But it is not so.—There is every reason to believe it to be a contrivance adapted for a much higher object, and one helping, perhaps, to connect the animal still more nearly with the vertebrated classes. In fishes, and all the swimming reptiles and mammalia, there is always more or less a power of rising and sinking in the water. It is true that this power is much more limited in fishes than people commonly imagine; but in the molluscs generally, and in the less highly organized classes, it is rarely found to exist at all. There can, however, be little doubt that the siphuncle is a means by which the Cephalopods provided with multilocular shells are enabled to alter their specific gravity, and so alter their relative depth.

The whole nature of the contrivance may be thus explained:—The deserted chambers in which the animal once dwelt are filled with

air, and have no communication whatever with either the body of the animal or with the siphuncle, after they are once closed in. The whole shell is thus lighter than the water displaced by it, and probably just so far counterbalances the weight of the animal as to make the whole, when the siphuncle is empty and collapsed, float at the surface of the sea. It must be remembered that the siphuncle passes into the pericardium, which is a large sac filled with fluid, and containing the heart; and as it opens freely into that cavity, and has no muscular fibre to contract it, must be entirely dependent for filling or emptying on the amount of pressure on the pericardial sac.

When the animal is at the surface it floats with the back of the shell above the surface, the arms and body being expanded; and thus the cavity into which the siphuncle passes is filled with its fluid secretions, the tube itself being, as before observed, empty and collapsed.

Now let a sudden danger be supposed to occur. At once the arms and body are drawn within the shell—a pressure is caused on the exterior of the pericardium—the fluid in it is forced into the empty tube; and since there is no communication between the empty chambers, the whole mass is reduced by the alteration of place of this fluid, and the specific gravity of the whole is, of course, diminished. The animal sinks.

Again, when it is crawling, by means of its long arms, along the bottom of the sea in search of food, the arms, it is true, must be expanded, but the body remains closely confined in the shell, which is the lightest part, and floats over the body without any tendency to fall on one side.

The importance of the siphuncle in the animal economy of this class will now be apparent; and it will be no longer a matter of surprise that so small an organ should be made use of to separate the Siphonifera into two families, which have been called respectively the *Nautilacea* and *Ammonoata*, from the respective types *Nautilus* and *Ammonite*. The distinction is that, in the former, the siphuncle is placed either in the centre or nearer the inner or ventral margin, while in the latter it is, without exception, on the dorsal margin. There are other differences resulting, probably, from this; the chief of them being the greater simplicity of the septa in *Nautilacea*, and in most cases a comparatively larger siphuncle than is found in the species referred to the other family. Besides, however, these two groups, there is a third, called by M. D'Orbigny *Peristellata*, which includes the *Belemnite*, a genus departing somewhat widely from any

of those referred to the other two families, and thus requiring a separate consideration.

It is found convenient to sub-divide the *Nautilacea* into four genera, characterized by the shape of the shell, which passes, by successive gradations, from a nearly straight cone to the spiral form and enveloped whorls of the Nautilus. One reason why we prefer this mode of arrangement is, that it will apply, in exactly a similar manner, to the *Ammonoata*; and as we shall show the probability there is that considerable changes in the animal economy were required for these various alterations of shape, there will, we think, appear quite sufficient reason for the adoption of this system of classification.

The four genera which now comprise D'Orbigny's first family, *Nautilacea*, are Nautilus, Endosiphonites, Spirula, and Orthoceratite. It will be remembered that the *Nautilacea* generally have the siphuncle central or ventral, and septa comparatively simple; and, bearing this in mind, let us proceed to consider the genera *seriatim*.

The first is the Nautilus, concerning which we have already said so much that it will hardly be necessary to enlarge much further upon it. The chief point to be attended to in the description of the shell are three: the usually central position of the siphuncle, the envelopement of the whorls by the last, and the simplicity of the walls of separation. There are exceptional species with regard to each of these characters, but on the whole they are very constant, and the slight departures from the type not more than we see in other and more completely known genera. The number of species now known in our seas is only two, while more than fifty fossil ones have been determined.

The recent Nautilus is found in very distant localities, and seems to be capable of inhabiting latitudes varying from thirty to forty degrees north to nearly as much south. It has been seen, according to navigators, in the Red Sea and the Indian Ocean, while that examined by Mr. Owen was taken near the group of islands called the New Hebrides, in the South Pacific Ocean. The habits of the animal requiring that it should obtain its prey near the bottom of the sea, it is not often seen on the surface, and when it does appear is not taken without some trouble, as it sinks immediately on the approach of danger.

Of the fossil species referred to this genus, by far the greater number occur in the oolitic and carboniferous systems; in the former accompanied by a vast number of Ammonites and other Cephalopods, which, being all carnivorous, indicate an extreme abundance of

animal life; and in the latter by very great numbers of Terebratulæ and Brachiopodous animals, which must also have required a very large supply of food in those ancient seas.

There is one very interesting fact, with regard to the genus *Nautilus*, which must not be passed over; we mean their universal distribution throughout marine deposits, from almost the first appearance of animal life to our own times. There are, indeed, species of *Nautilus* peculiar to every formation, from the transition limestone to the chalk; others entirely confined to the tertiary deposits; and others, again, as the *N. Pompilius* and *N. umbilicatus*, found living in the waters of the ocean. When it is remembered that this long continuance of a genus is almost without parallel in the history of animal life, and also that it occurs in a class remarkable for high organization, the importance of the subject will be in some measure seen, and we shall be justified in dwelling so long upon this part of it. In fact, if it were not for our knowledge of the recent *Nautilus* and its habits, almost the whole subject of fossil multilocular shells would be entirely beyond our reach. What is now certainty would be mere matter of conjecture; and notwithstanding the vast number, both of species and individuals, we should scarcely be able to make out, with any degree of probability, to what kind of animals they once belonged, whether they were zoophagous or phytiphagous, or, indeed, any one point in their whole history. The *Nautilus* is the guide in all our researches, and it leads us to a knowledge of the natural history of many races now extinct, by those principles of analogy which, when properly and carefully employed, are as certain as they are useful in determining the habits of beings now no longer in existence.

Next in order to the genus *Nautilus*, we have mentioned one which will be new to most of our readers—the *Endosiphonites*, occurring earlier in geological position than *Nautilus*, but apparently extremely limited in the extent of its range. In this genus the siphuncle is on the inner margin of the shell, and the whorls of the spiral, although they all touch each other, are not found to wrap over, or, as it is usually called, envelope, the inner ones. The walls or septa of the chambers are also, on the whole, more generally complicated in their form than perfectly simple or cup-shaped; and in all these points there will be observed a departure from the generic character of the *Nautilus*. This genus was first separated by Count Münster, in consequence of certain species observed in the transition limestone of the Fichtelgebirge (a mountain in the south of Germany, not far from Nuremberg), and was called by him *Clymenia*, which, as it had

been already given by Cuvier to a genus of Annelides, could not be retained ; and on the discovery of new species among some fossils from Cornwall the name Endosiphonite was proposed, as indicating the chief peculiarity in the genus, and also having analogy with the names of other fossil genera of multilocular shells.* The number of species already determined amounts to sixteen or seventeen, thirteen of them German. They are all probably referrible to the same geological period, which is one of the very earliest in which fossil remains are found.

The Spirula is a shell well known to conchologists by a recent species, and apparently very common in many parts of the ocean, but unfortunately the history of the animal whose habitation it is we are not yet able to give ; for, although the shell abounds in many places, the animal is never attached, and there is even some degree of doubt as to whether it includes the shell or is included by it. In all probability the former is the case.

In the transition limestone of Æland, an island on the south-eastern coast of Sweden, there is found a fossil which has been called Lituite, but which seems, as far as can be told, to belong to this genus Spirula. Both are spiral shells, with the whorls of the spine not close to each other, as in Nautilus ; and both have simple septa, and a siphuncle nearer the inner than the outer margin. As these Lituites seem confined to the transition limestone, and the Spirula has never been met with in a fossil state, it will be a very singular anomaly in natural history if these eventually prove to be referrible to the same genus ; for there is no known instance of a genus being re-created after it has been once extinct.

If we conceive the shell of a Spirula straightened out, so as to present the appearance of a series of cup-like chambers placed over one another nearly vertically, we shall have the Orthoceratite, a genus so named from its resemblance to a straight horn. It is entirely confined to a few very ancient formations, although the number of ascertained species is more than fifty, and the abundance of individuals perfectly incredible. The size, too, which some species reached was extremely large ; for they have been found more than three feet in length, and with a diameter of more than six inches at the opening.

* The description of this genus from the English species will be found in the forthcoming volume of the *Cambridge Philosophical Transactions*, where also the analogies with allied genera are more fully discussed. Count Münster's paper is translated in the *Annales des Sciences Naturelles*, 1834.

As many as seventy chambers have been counted in these enormous specimens.

We have thus, in the family of *Nautilacea*, a series of genera of chambered shells, with siphuncles running through them, the form of the shell varying from that of a straight cone to a spiral, in which all the inner whorls are hidden by the last one; and the question now to be considered is the probable amount of change in the animal economy which corresponded to these alterations of shape.

Now we know, in the first place, that the *Nautilus* is an entirely external shell, capable of some range in the depth at which its inhabitant lives, and therefore sufficiently strong in the structure of air-chambers to resist the increased pressure arising from increased depth in the water. What conclusions shall we, then, arrive at from the structure of the *Endosiphonite*, where the septa are stronger, inasmuch as they present more points in their intersection with the shell, and where the pressure acts immediately upon the whole surface, and not intermediately, as in the *Nautilus*, where the whorls successively defend each other? It seems probable that this new genus was an external shell, sometimes rising to the surface, like *Nautilus*; but from the narrower and less rounded appearance of the shell, and from the shape of the septa, we should conclude that it belonged to an animal of rather greater activity, and one, perhaps, more capable of following its prey along the muddy bottom of a sea, than the inhabitant of such a shell as the *Nautilus*.

There seems a very great probability that the animal of *Spirula* incloses within its mantle the whole or greater portion of the shell; and from the close analogy of the *Lituite*, doubtless, that also was internal. We should expect an animal thus independent to be endowed with greater powers of locomotion than one encumbered with a house upon its back very much larger than its body; and probably all the free *Cephalopods* are more swimming than creeping animals. In support of this opinion the *Spirula* is known to be a very thin and brittle shell, and the apertures in the septa, instead of opening a simple communication from chamber to chamber, are united by a calcareous tube passing continuously from the last or outer septum into the first chamber. The size of the last chamber is also, in every known specimen, very small; and although, from the brittleness of the shell, the aperture might and would easily become injured, still, out of the number that have been seen and brought away, something would surely have been found to indicate this extension, if it had ever

existed. What the exact mode of increase in a shell like this may have been, and whether any principal organ of the body was immediately connected with the chambers, the present state of our knowledge with regard to this animal does not allow to be determined. It is to be hoped that some one of our numerous scientific navigators may follow the example of Mr. Bennett,* and, by preserving and putting into the hands of a naturalist the animal of a *Spirula*, set them and many other questions at rest for ever.

It is a matter of extreme difficulty to determine whether the *Orthoceratite* was an external or internal shell. Dr. Buckland has considered the latter as the most probable opinion; but, from the very large size of the last chamber, and the difficulty of conceiving so enormous a cephalopodous animal as to require an internal shell three feet long, we may be allowed to doubt the correctness of such an assumption. The siphuncle, too, varies so much, and was evidently so very important an organ in this genus, that we hardly know how to bring our analogies to bear in the consideration of it. If this singular shell was really the mere skeleton of an animal whose predaceous habits were at all proportioned to its size, we must pause with wonder and astonishment at the state of animal life in those seas which could support myriads of these giant molluscs upon the exuberance of its stores.

There is one more question which presents itself with regard to this part of the subject, although it applies equally to other parts; and that is, whether the temperature required for the development of these large animals in such amazing numbers was greater than is at present known in the climates where they are found. Many, indeed most, of the beds remarkably abundant in these fossils, are in high northern latitudes; and it has been imagined that a low temperature is not favourable to such extreme vitality. It may be so, but we are not justified in concluding at once that it *must* be so. Probably in no part of the tropical seas is there so much living matter as in an equal area in the Polar seas; and it is a well-known fact that the Whale has but to swim for a short space with its mouth open in order to satisfy its appetite, which in so huge a creature must necessarily require a large quantity of food. Still, as many other known facts concerning these early seas seem to point more or less to the

* It is to the fortunate capture of an individual of the *Nautilus Pompilius* by this gentleman that we are indebted for the valuable memoir of Mr. Owen, which has thrown so much light on the subject of the cephalopodous animals of multilocular shells.

same conclusion, there is certainly a high degree of probability that the neighbourhood of the North Pole did not then produce that extremity of cold which now characterizes it. At all events, the general opinion at the present day is in favour of such a supposition; and we do not feel either inclined or prepared to controvert it. All we wish is, to give the reader to understand that it is a supposition, and not a matter absolutely decided.

We have hitherto, while considering the family *Nautilacea*, been guided in some measure by analogies which connect the fossil with the recent genera. Passing on now to the *Ammonoata*, we are obliged to leave behind us these glimmerings of light; and since there are, so far as is known, no living congeners of this family, we are forced to bring into operation certain rules founded on experience, and depending on two broad and general principles: viz. that no part of an animal whatever exists without its use; and that while the general structure is perfectly adapted to the wants of the species of which it is significant, so also every portion has a mutual relation with all the rest, is in itself quite perfect, and exactly fitted to the purpose assigned to it.

The extent to which this entire dependence on the perfect wisdom of the Creator may be safely carried, must be almost marvellous to any person not in the habit of studying Natural History, with enlarged and general views. But no one can call to mind its value in the hands of Cuvier, when applied to the comparative anatomy of animals of higher organization, without acknowledging that it became with him an instrument for the discovery of truth, whose astonishing power was only equalled by the sagacity of him who employed it. It remains still to be seen how far the same means of discovery may be extended to the lower forms of animal life, and the conclusions forced upon us in consequence. We have already shewn that, in applying it to the cephalopodous animals, we are descending only the first step in the scale of organization from the vertebrata (the object of Cuvier's researches), and thus, in the case before us, we are entitled to look with considerable confidence to that dependence of structure on organization which certainly becomes less strongly marked as we approach the limits separating the animal from the vegetable existence.

Proceeding on these principles, we assume the position of the siphuncles in multilocular shells as the distinctive character of two great families, because we find this character accompanied by a very remarkable change in the contrivances which indicate strength, and

thus feel warranted in concluding that a corresponding alteration existed in the structure of the animal inhabitant. We then proceed to subdivide these larger into smaller and more convenient groups, and consider the external appearance as a sufficient generic character, because on that chiefly seems to depend the fact whether the body of the animal was included within the shell or included it. Bearing in mind this distinction, there may be mentioned five well-defined and easily-known genera of *Ammonoata*, which are called *Turrilites*, *Scaphites*, *Ammonites*, *Hamites*, and *Baculites*, all having a dorsal siphuncle, and its walls of separation between the chambers being in all more complicated, and stronger than is generally the case in any genus of *Nautilacea*. As in that family we first explained the mere technical facts relating to each genus, and then enlarged a little on the probable nature of the animal, so we propose now, following the same course, to inform the reader, first, of what is *known* with regard to these extinct genera; and then to indulge in some of those curious speculations which the subject is so well calculated to introduce.

The order in which we have arranged the known groups above-mentioned is not of much consequence, perhaps; but, as it departs from that usually employed, we may as well observe that the names are not thrown together thoughtlessly, but arranged on a principle which, for our purpose, is convenient enough. First, taking the most complicated form, we have named the *Turrilite*, which is a spirally twisted shell, not developed on one plane. In fact, its shape resembles that of a Snail, and many other common turreted shells, too well known to require mention. The next, *Scaphite*, is named from a Greek word signifying a *boat*, and may be compared to an Ammonite whose last whorl is separated from the rest, and after being extended for a short space in a straight line, is again bent round to meet the rest of the shell. The *Ammonite* is a simple spiral, with the whorls contiguous and developed on one plane; the *Hamite* more resembles a hook (whence its name), the whorls not being contiguous, and the *Baculite* (so called from its similarity to a *staff*), is quite straight, and usually in the shape of a long right cone with an elliptic base.

The *Turrilites*, and indeed all the other *Ammonoata*, except the *Ammonites*, are confined to very narrow limits of geological distribution, being rarely found in any formation anterior to the lower greensand, though they do occasionally appear in the oolites. There is one species of *Turrilite* described as occurring in the coral rag of the

north of France ; three more in the green-sands of the English cretaceous group, and at least three in the chalk ; but they do not seem to be ever very plentiful, and, owing partly, perhaps, to the extremely thin shell, and partly to their shape, which is more exposed to injury than the flat shell of the Ammonite, they are scarcely ever obtained perfect. The shell is strengthened with ribs and tubercles ; the chambers seem to be numerous, and the last is very much larger than the rest. The siphuncle is, of course, dorsal, and is usually small compared with the area of the last septum.

The Scaphite is found in the formations from the lias to the chalk, both inclusive. But one species (according to Fitton) is known in England below the chalk, although there is one in the French inferior oolite, and another in the lias at Wurtemberg. There are two more species known, both met with in the English chalk. There seems to be considerable difficulty in determining the real nature and use of the curious last chamber of the Scaphite. The inner part—that is, all the shell first formed by the animal—closely resembles an Ammonite, except that there is a slight *puckering-up*, as it were, of the shell, which indicates the genus ; but how the last and outer chamber, which is larger than all the rest together, could, by any contrivance, be transformed into an inner coil as the animal grew and required a larger habitation, is a problem hardly yet attempted to be solved. Besides, in a state which we may suppose adult, the last chamber is sometimes turned round again in an opposite direction, and actually meets, and is partly closed up by, the inner whorls. We shall have more to say concerning this curious genus when we come to consider the probable nature of the animal.

We have now arrived at the third genus named, the well-known and widely-extended Ammonites, a group of shells sufficiently marked by more than one important character, and found throughout the long series of fossiliferous formations, from the very earliest to the chalk ; not scantily distributed, as the former genera, but most astonishingly abundant, and including nearly three hundred species, varying in diameter from a line to more than four feet. The general shape of these shells is well known, and they have long attracted the attention even of the least observant, under the name of *petrified serpents* which, by some unaccountable fatality, had all lost their heads. They may be seen in the cottage of the poor and in the drawing-room of the rich ; they may be picked up in the quarry or dug in the field ; and of all the innumerable proofs that surround us of the former existence of animals now extinct, none is more remarkable than the

universal occurrence of these Ammonites, of which not a single living analogue is found to tell the history of a genus once, perhaps, the most abundantly diffused of any ever created.

The variety of form in these fossils is, of course, very great, and there are whole groups, or sub-genera, characteristic of certain formations, and never found in any other. Thus, the Goniatites form the first sub-genus, and occur only in the mountain limestone and older beds. The Ceratites are peculiar to the muschelkalk, a peculiar continental stratum, occurring between the upper and lower beds of the new red sandstone of English Geology. The oolite formations are provided with quite a series of sub-genera, confined to them in local distribution; and the cretaceous system, though not characterized by its own group of these fossils, does not want for species found only in that formation. It is necessary that we should first explain the grounds of distinction in these sub-genera, and then, because of their superior importance, we shall enlarge a little on the Goniatites and Ceratites, two groups departing more than any other from the ordinary type of the genus.

The shell of the Ammonite is, as we have said, of a simple flat, spiral shape, and is formed of a succession of chambers separated by thin plates of carbonate of lime, called septa, which, however, are perforated, and allow a tube to pass through all of them to the first formed chamber. These perforations, too, are always on the back of the shell. Now, it is quite clear that a succession of these transverse plates, in a shell like that of the Ammonite, cannot but strengthen the shell very much, and enable it to resist a pressure and an amount of external injury which would otherwise crush and destroy it. It is also true, though not, perhaps, quite so clear, that if these plates, instead of being flat, are irregularly puckered or bent in and out, by a series of folds all ending in the centre of the plate, and making the line of intersection of the septum of the shell a complicated curve, instead of a straight line, the strength will be very much increased by an increase in the weight of material. This is a truth sufficiently well known to practical men, and acted on in the construction of cast-iron columns, which are always stronger for the same weight when they are fluted. The septa of the chambers of Ammonites are thus fluted, and often in a most complicated way, so as to present a very beautiful and remarkable appearance, somewhat resembling the edge of a parsley leaf, when the line of intersection with the shell is open to our view. In the Nautilus, and generally in all the species referred to the family *Nautilacea*, there is none of this

complication of structure ; but in the genera we are now describing it is always met with, more or less varying from a nearly simple line, in some Goniatices, to the extreme of complication in the Ammonites of more recent formations.

The approximation to the Nautilus, denoted by the nature of the septum, is the separation most to be depended on in the group which has received the name *Goniatices*, a name derived from the Greek γωνος, an angle, and pointing out the usual appearance of the intersection, consisting of a succession of small curves meeting in angles which, along the back of the shell, always point in the direction opposite the aperture. Most of the species are in some measure rounded, and often the last whorl envelopes the rest ; indeed, altogether their general appearance more resembles the early forms of Nautilus than any Ammonites ; but their siphuncle, which usually is extremely small and thread-like, is always situated on the dorsal margin, or, in other words, runs along the back or outside of the whorls. It is supposed, also, that the proportional magnitude of the last chamber was much greater in this group than in other Ammonites, so large a portion as one turn and a half being sometimes left vacant for the habitation of the animal.

(To be continued.)

A NATURAL HISTORY OF THE CUCKOO,*

(CUCULUS CANORUS).

BY EDWARD BLYTH, Esq.

THE subject proposed for dissertation is the Natural History of the Cuckoo, concerning which extraordinary British bird it will be admitted that too many elucidations cannot be adduced ; for which reason I purpose to enter somewhat minutely into the several details.

There are many who have lived long in the country without ever having seen the Cuckoo ; and the poets have sometimes figured

* Read before the Ornithological Society of London, July 6th, 1833.

it as a "wandering voice," as an unsubstantial twin-sister of echo, a fairy-note of spring. It is, indeed, pre-eminently (as the rhyme expresses it) a

"timid bird,
Seldom seen, though often heard."

Yet there are few accustomed to ramble in the woods and fields but must have occasionally noticed it while on the wing, either threading its way among the trees with a wild, irregular sort of flight, or passing steadily along at a moderate altitude, its progress sometimes accelerated by a train of one or more smaller birds in close pursuit. Its appearance on the wing may be likened to that of a small Pigeon, but with a longer tail; and those who have seen it once will not fail to recognise it on a second occasion.

Its colour is uniform dark grey above, and on the breast; below whitish, streaked across with the same tint as the back. The quills and tail-feathers also appear barred, when extended. The irides, or coloured portion of the eyes, are bright yellow; the feet pale yellow. The beak, which considerably resembles that of a Thrush, is horn colour; the gape wide, and interior of the mouth bright orange. The legs are short, with long tibial feathers, as in the Hawks; the toes placed two in front and two behind. Old females differ not at all in plumage from the males; but many of the latter, in their second dress, and the females until they are several years of age, are more or less barred with rufous on the sides of the neck and breast. The young are so different as to have been formerly considered a distinct species, having all the upper parts dusky, mottled and barred with rufous, and more or less tipped with dull white. They vary considerably among each other when in this garb, but the males are always considerably more rufous. The nestling Cuckoo has the inside of the mouth deep orange-red, and the irides insipid, pale blue-grey.

Such, in few words, are the ordinary progressive changes of the Cuckoo. From being mottled, it becomes on the upper parts spotless grey, more or less quickly; the females, also, more tardily than the males, and some individuals than others. The change is, moreover, effected entirely by a shedding and renewal of the feathers, and not by an alteration of colour in the same plumage, which happens in some species. The young undergo no moult while they remain in this country, and in confinement retain their first feathers till about February at the earliest; and that they do not shed them sooner, when in a state of nature, is proved by the circumstance

of the moult being rarely completed in the young of the preceding year when they return in spring, one or more of their primary quill-feathers, and of the greater coverts impending them, being then commonly still unchanged.

I mention these particulars because it has been intimated, as highly probable, from the unusual length and quantity of plumage which the Cuckoo carries, that this bird undergoes no change of feather during its first winter, but gradually alters in colour only, as in some Hawks.

I have remarked, also, that the adult birds, previously to their departure, renew their clothing feathers, and also the tail, but retain the quills to bear them on their journey southward. It was in making this observation that I learned additionally that the barred markings on the neck of the female recur for a series of years.

White specimens are sometimes met with, of which one or more may be seen in the national collection ; and occasionally a particular state of plumage is assumed, more frequently, it would appear, in the south of Europe than in our latitudes. The dress alluded to, which is very similar to that of the female Kestrel Hawk, bright rufous, barred with black, yet different from the immature plumage described, has been regarded by Temminck and others as a regular progressive stage, common to the whole species ; and to account for the comparative infrequency of specimens in this attire northward of the Alps and Pyrenees, it has been suggested that the young of the preceding year do not migrate so far northward as the older birds. The supposition, however, is erroneous ; for, even in confinement, I have witnessed the assumption of the grey plumage at the first moult ; and it would be contrary to general analogy were it otherwise than erroneous, inasmuch as the young of other migrants return to the place of their nativity the following spring. I once saw a specimen, in this particular garb, which had been shot in Surrey during May, while in the act of crying "cuckoo," and I am convinced that it is merely an occasional variation, peculiar, however, it may be presumed, to the young of the preceding year once moulted.

In its internal anatomy the Cuckoo manifests a close approach to the Moth-hunter (or *Goat-sucker*, as it is sometimes called), and appears to be intermediate in its general structure to that curious group of birds, and the Tamatias or Puff-birds of South America. The skeleton chiefly differs from that of the Moth-hunter in the modification of the bill and feet, and in displaying a reduced adaptation for powerful and sustained flight ; the keel of the breast bone—

to which the enormous pectoral muscles, those which constitute what is termed the breast-cut in a Fowl, and the contraction of which imparts the propulsive stroke in flying, are attached—being less developed, and the wing-bones shorter. The similitude of their alimentary organs is also considerable; and both are remarkable for the diminutive size of the brain, which in the Cuckoo barely outweighs a single eye (being only about twenty grains), and in the Moth-hunter is reduced to its minimum in the class of birds. There are certain other resemblances observable, but on the present occasion I deem it unnecessary to pursue the subject further.

Both the Cuckoos and the Moth-hunters pertain to that extensive order of birds which, in an arrangement of the class which I had lately the honour of submitting to the Zoological Society, I designated *Strepitores*, (or Screechers); an order characterized by numerous physiological agreements, but which embraces many forms externally dissimilar—that is to say, in those adaptive characters which have reference to a special mode of life. It is only in this group, among what have been termed *perching* birds, that the vocal organ is simple, or furnished with only a single pair of muscles; in consequence of which its various members are unable to inflect the voice, and can only utter some peculiar cry, as we observe in the Cuckoo. Now, throughout the long series of groups which compose this order—that is to say, in all these *Insessores* of Mr. Vigors' arrangement which have a simple vocal apparatus, the brain is less highly organized than in the contiguous ordinal divisions; and there is a corresponding marked inferiority in the intellectual capacity; for while the extreme docility of the Parrots, and of the Crows, Finches, &c. is notorious to every one, I am unaware that a single instance can be adduced of any species belonging to the distinct order adverted to, manifesting the least capability of receiving instruction. It is true that they may be tamed, may exhibit attachment to one person more than to another, that some of them, at least, will readily distinguish those they are accustomed to, while they evince distrust of a stranger; but I am greatly mistaken if any one of them could be *trained* to any purpose, could be taught to perform a single action that is not natural to them. Whoever has observed a Kingfisher, a Cuckoo, or a Woodpecker, in a state of captivity, will readily acknowledge the force of this remark.

With respect to those genera which have been commonly more immediately associated with the Cuckoos, it will be sufficient to remark that the genus *Cuculus* of Linnæus comprehended several, which have since been separated with propriety, though still brought

together as a higher group under the designation *Cuculidæ*. From them, however, it is necessary to detach the Honey-guides (*Indicator*) of Africa, which are much more nearly related to the Woodpeckers, approximating the Cuckoos only in secondary or superficial characters; also the Courols (*Leptosomus*) of Madagascar, which are more intimately allied to the Puff-birds of America; the Rain Fowl (*Scythrops*) of New Holland, which, merely from having a great beak, and for no other reason whatever, has sometimes been placed among the Toucans, is, in every essential detail of its conformation, a true Cuckoo. The degree of affinity which the West Indian Ani, also, bear to this group, must continue problematical, until we know something of their interior anatomy.

As thus restricted, then, a constant character of the *Cuculidæ* (or Cuckoo family) is to have the tail composed of only ten feathers, in which they further resemble the Moth-hunters; unless, indeed, the Ani prove to be admissible, which have but eight. It is only in the series of groups which compose my order *Streptitores* that, throughout the class of birds, the tail is ever composed of less than twelve feathers. In the Cuckoo family, and in the neighbouring one of Puff-birds, the clothing feathers are single, as in the Pigeons, being wholly destitute of the secondary shaft, or accessory plume, which, in the Moth-hunters (as in the Swifts), is considerably developed. All have the toes disposed in pairs—that is to say, two forward and two behind, that which corresponds to the outer toe in the generality of birds being reversed, as in the Parrots; but none of them climb, though some have the foot expressly modified for running along the ground. There is a general tendency, also, to a lateral disposition of the two hindward toes, which is a characteristic structure of the Courols and Puff-birds.

The genuine Cuckoos, or those which are included in the genus *Cuculus* as now limited, are peculiar to the eastern hemisphere, over which they are generally diffused, and more numerous southward of the equator, several species of them inhabiting New Holland.—Among them is a peculiar group, consisting of birds of diminutive size, found chiefly in South Africa, which are remarkable for the gorgeous brilliancy of their emerald-green plumage. The rest are clad in the unassuming sober livery of the species of this country.

The British Cuckoo is very generally distributed over the greater part of Europe, and considerably to the northward of the British islands; but it is doubtful whether it reaches far into Asia, where, however, there are two or three closely allied species, one of which (at least) utters the same cry. It passes the winter in Africa, at

which season none are found north of the Mediterranean. A few breed in the southern hemisphere, towards the Cape of Good Hope. In most parts of Britain it is a bird of rather common occurrence, frequenting woodland districts, and waste lands interspersed with trees. It is plentiful as far north as Sutherland, but a rare and uncertain visitant in Shetland and Orkney.

Its welcome note is first heard, generally, about the second week in April, but if the weather prove chilly and ungenial it continues silent for some time: in the more northern localities its arrival may be somewhat later. The old birds are generally all gone before the end of July, but the young remain till September, at which time they leave the country in small flocks. Some of the adult birds, also, both arrive and depart in flocks, but others migrate singly. The truth is, that many of the young are not even hatched at the time their parents depart; but as fast as they acquire the requisite strength they assemble and migrate, so that there is no particular accumulation of them in the autumn, as would otherwise be the case.

Cuckoos frequently assemble at each other's call during the spring and summer, whence it is not unusual to perceive several on the same tree, or clump of trees; but the companies of them soon disperse as readily as they form. Their well-known cry, from which is derived their name, is common to the two sexes, but is more frequently reiterated by the male; and when they congregate as just related, we often hear this note stammered forth, as it were, with eagerness, its first syllable being broken into two or three. This cry is very hoarsely emitted before it finally ceases, and its first syllable is then, also, sometimes repeated two or three times. It is peculiar to the adult bird, and is first emitted while they are shedding their nestling plumage.

The Cuckoo has also another equally characteristic cry, which is delivered only during flight, and generally as it takes wing: it is a peculiar tremulous whistle, very full and melodious, and, according to my judgment, musical in the extreme. Sometimes the cry "cuckoo," also, is repeated while taking a steady flight: the other sound being chiefly uttered when gliding through a thicket. As remarked by Sir W. Jardine, these birds "are seldom seen on the ground; but, when obliged to be near it, alight on some hillock or twig, where they will continue for a considerable time; swinging round their body in a rather ludicrous manner, with lowered wings, and expanded tail, and uttering a rather low monotonous sound—

'Turning round and round, with *cully-oo*;' "

in short, evincing by these gestures their near relationship of affinity to the Australian Rain Fowl. The voice of the young is an unpleasant shrill twitter, at once recognizable, and which is very apt to betray the place of concealment.

The Cuckoo's food consists principally of insects, chiefly, however, the larger caterpillars, both smooth and hairy. These it first kills by shaking and knocking them violently against the bough on which it is perched, and then renders them thoroughly pliant by passing them several times through the bill, before it swallows them. It also feeds largely in the spring upon the common May Chaffer (*Melolontha vulgaris*), and has been seen to pursue and capture Dragonflies on the wing. As the season advances it will also attack various kinds of fruit, as Cherries (of which it is particularly fond) and Currants. It appears, also, to devour bird's eggs, as well as callow nestlings, of which more presently; but caterpillars form decidedly its principal and main food, the exuviae of which it casts up in the manner of a Hawk, in oval pellets, of the size of a Sparrow's egg. It is in search of these that the Cuckoo is so often seen about fruit-trees, at the time of its first arrival; and it doubtless renders them an efficient service, as it not only preys upon those which have grown to some size, but also, in the spring, may be frequently observed deliberately picking out the newly-hatched larvæ from their webs; an operation which has been construed by gardeners into "sucking the blossom," if any meaning can attach to such a phrase. Whilst feeding on a tree, the Cuckoo leans very forward upon the bough on which it is sitting, as it examines the foliage for caterpillars, its tail being sometimes raised; and it frequently takes surprising leaps from bough to bough, considering the shortness of its legs. I have never seen it attempt to climb in any sort of way, nor walk up a branch, using its feet alternately; but conceive that the object of its having the outer toe reversed is merely to enable it to grasp its perch more firmly, when leaning so much forward.

Respecting the carnivorous propensity of the Cuckoo, and also the habit already mentioned, of performing its migrations in society (of which latter fact I have abundant additional evidence), it may be interesting to quote a passage from *A Familiar History of Birds*, the production of the present Bishop of Norwich. "Some years ago," relates his lordship, "at dawn of day, early in the spring, a gentleman living on the Cheshire side of the river Mersey, opposite Liverpool, was awakened by a kind of chattering noise, interrupted by the cry of "*cuckoo, cuckoo*," in a low plantation near his house, situated amongst the sand-hills bordering the shores of the estuary,

and on looking out observed a pretty large flock, which, at sun-rise or soon after, all took to flight.

“Here, then,” continues his lordship, “we have an instance of their being sociably inclined on their arrival; and it would seem that they are equally so when about to leave us: for in a garden in the county of Down, in Ireland, from the 18th to the 22nd of July, not less than forty Cuckoos were observed, for the most part amongst the gooseberry bushes, probably collecting the grubs which often infest those plants, and not to eat Gooseberries, as the gardener supposed,” and also (I must beg leave to interpolate) myself suspect; “and it was remarked that they were almost all so sleepy and drowsy as to permit a very near approach, though not quite so near as to admit of being caught by the hand. There happened to be a late brood of Blackbirds, not quite fledged, in a nest, which were discovered by the Cuckoos, who destroyed all but two; they were seen to tear them in pieces, the gardener actually rescuing one from their grasp, which had its leg and wing severed.” I should observe, in reference to this, that the Gullet of the Cuckoo is remarkably slender, notwithstanding the capacity of its gape, being insufficiently wide to admit the finger: it cannot, therefore, swallow a large morsel. His lordship continues—“Not above three or four were heard to cry *cuckoo*, and these in a sort of hoarse, unnatural tone. The greatest number collected towards sunset, though many remained throughout the day. After the 22nd of July only one or two remained, which were evidently weaker than the rest,” perhaps backward in their moult.

In *The Magazine of Natural History* a particular tree is mentioned, which, in its neighbourhood, is popularly known as “the Cuckoo tree,” from the circumstance of its being annually the resort, perhaps resting-place, of a flock of Cuckoos, on the occasion of their re-appearance in the locality. It is well known that migratory birds not only return seasonally to their former haunts, but also pursue, in general, the exact same route.

The alleged ovivorous appetite of this species next claims our attention. That many eggs of other birds are destroyed by it I have positive evidence; and I once obtained a female the breast of which was smeared with yolk of egg. But this does not amount to proof of the fact that it eats them; and I have sought in vain for traces of this food in the stomach. Popular opinion intimates that the Cuckoo is an egg-devourer; but the circumstance of its destroying them suffices to account for this. There are better grounds for supposing so from analogy. Thus Wilson, the ornithologist of America,

asserts of a species of *Erythrophrys* common on that continent, and commonly termed the Carolina Cuckoo, that "they are accused, and with some justice, of sucking the eggs of other birds; like the Crow, the Blue Jay, and other pillagers:" and this statement is amply confirmed by Mr. Nuttall, whose personal testimony may be considered decisive. Now the birds alluded to, though differing in several points, and particularly in that of incubating and tending their broods, are nevertheless closely related to the Cuckoo; inso-much that what constitutes the food of one may be predicted, with little hazard, as that of the other also. An ovivorous propensity is furthermore common to several of the yoke-footed tribes. The Toucans have been long notorious for it; and Audubon has remarked it even in a species of Woodpecker, which he describes to enter pigeon-houses for the purpose of feeding on the eggs.

It may be well to notice here an erroneous statement which has crept into many works of natural history, to the effect that the lax and flaccid stomach, both of the Cuckoo and of its American relatives just mentioned, is internally lined "with a growth of fine down or hair, of a light fawn colour. It is difficult," remarks Wilson, "to ascertain the particular purpose which nature intends by this excrescence; perhaps it may serve to shield the tender parts from the irritating effects produced by the hairs of certain caterpillars, some of which are said to be almost equal to the sting of a nettle." But the truth is, that the appearance in question is nothing more than the hair-like spines of the caterpillars on which the bird had been feeding, as becomes at once apparent on viewing it with the assistance of a lens; and as they accumulate these spines are worked into a hard oval ball by the mechanical action of the stomach, which is finally, as already mentioned, ejected by the mouth—a circumstance of ordinary occurrence throughout the series of animal-feeding land birds.

We arrive now at the most extraordinary portion of the Cuckoo's history, its parasitic habit of laying in other bird's nests, and leaving its progeny to the fostering care of strangers. Hence it is observable of them that they never pair, nor are they polygamous, like domestic poultry, but associate promiscuously.

The reason that the Cuckoo thus deviates from the general practice of the feathered race—that is to say, the ultimate or remote cause of it—is obscure; but the proximate or immediate cause may, I suspect, be found in a structural peculiarity, which, I am inclined to think, retards the developement of the eggs, so that a longer time than usual is required to intervene between their successive deposi-

tion. The same modification also suffices to account for the small proportional size of the Cuckoo's egg, which adapts it to the size of the nest into which it is laid.

The Cuckoo deposits its egg in a great variety of nests, both of granivorous and insectivorous birds, though more frequently the latter. This fact is interesting, as some of the species to which it is confided, as the Linnet and Green Grosbeak, rear their own offspring exclusively on macerated vegetable food disgorged from the craw. But the following narrative will tend to throw some light upon the matter. In *The Field Naturalist's Magazine* we read that "a Cuckoo was found, just hatched, in the nest of a Hedge Chanter. It was immediately taken from thence, and placed in a cage containing a hen Canary. The birds agreed perfectly well; but," it is remarked, "what is most singular, when the proper food for the Cuckoo (small caterpillars, &c.) was placed in the cage, the Canary fed its young charge with that, although she herself kept to the hempseed, &c., to which she had been accustomed." Dr. Jenner, however, found in the stomachs of some young Cuckoos that had been nurtured by seed-eating birds the remains of vegetable diet.

The most usual foster-parents of the Cuckoo are the Pipits and Wagtails, and where these are less numerous, the Hedge Chanter; the Larks, the different Buntings, the Robin, the Whin Chat, and Stone Chat, and the several aquatic warblers (*Salicaria*) are also not unfrequently selected. The Greenfinch and Linnet, the Chaffinch, the Common Shrike, and Blackbird, more rarely; and the Turtle Dove, and even the Jay, have been mentioned. Instances have likewise occurred of its intrusion into the domed nest of a Willow Wren, which is torn and shattered by the operation.

The object of the last remark is to show that the Cuckoo actually lays its eggs into the nests which receive them, never carrying one about in its mouth, and so introducing it, as Levaillant affirms to be the case with the small Emerald Cuckoos of South Africa. In the very numerous instances which I have known of the occurrence of the Cuckoo's egg, not one has happened where it could not have been laid into the nest; though I have reason to believe that it sometimes may be dropped in, as Mr. Ord affirms to be the case occasionally with the North American Molothrah (or "Cow Bunting," another parasitic species) as intimated by the fact of its breaking any other egg on which it may chance to fall.* The Cuckoo, however, inva-

* Since writing this, I have accidentally met with the fragment of a leaf

riably, when undisturbed, destroys the eggs of the rightful owner of the nest into which it deposits its own; for otherwise the alien egg would be very commonly ejected, as I know from repeated experiments made with Lark's eggs, which I have generally used as being most similar to those of the Cuckoo. In these experiments I have commonly found that, if an egg be placed in a newly-finished nest before the owner of it has begun to lay, it is forthwith forsaken; and I have been informed of the Cuckoo's egg being so deserted, in a state of nature. If the alien egg, however, be placed along with other eggs, then it is oftentimes discarded; but if the other eggs be removed altogether, and the strange one left alone in their place, the chance is very much greater of its adoption. I do not assert that the procedure of which I have spoken is invariable, because I know to the contrary; but I affirm that, in the average of cases, the results will be as described.

Now, that the Cuckoo destroys the eggs of her dupe is a fact that, strangely enough, has not been generally introduced into the descriptions of this species; for which reason I select one or two conclusive instances, to show that I have grounds for the assertion:—A Meadow Pipit's nest was found, with four eggs in it; and on looking at it the following day these had all disappeared, and a Cuckoo's egg was in their place. Another nest of the same species was found, with two eggs in it; the next day these were gone, and a Cuckoo's egg was in the nest alone; and the following day the Pipit had laid an egg to this, and the day after that another, when the nest was taken and brought to me. This narrative relates to the identical specimen now in the Ornithological Society's collection. Indeed, the Cuckoo's egg is very commonly found alone, or when there are others with it, these are ordinarily below their average number, intimating that they had been laid subsequently to the deposition of the alien. My friend Mr. Hoy has communicated the following observation to *The Magazine of Natural History*. "I once observed a Cuckoo," relates that naturalist, "enter a Wagtail's nest, which I had noticed a short time before to contain one egg; in a few minutes the Cuckoo crept from the hole, and was flying away with something in its beak, which proved to be the egg of the Wag-

of some magazine, in which an instance is recorded of a young Cuckoo being imprisoned in the hole of a tree, having outgrown the size of the aperture through which the egg must necessarily have been introduced! It may, notwithstanding, have been *dropped in*, supposing the cavity to be shallow, and pretty well filled up with nest materials, a circumstance of which I have no information.

tail, which it dropped at my firing a gun at it. On examining the nest, the Cuckoo had only made an exchange, leaving its own for the one taken."

Instances occur sometimes of two Cuckoo's eggs being found in the same nest; and I have credible information of a case of this kind, in which a couple were found, unaccompanied by any others, in that of a Blackbird. Accordingly, therefore, the Cuckoo must instinctively recognise the egg of its own species, and refrain from touching it. It can be readily shown that she does not destroy those of her dupe previously to introducing her own, inasmuch as, when disturbed in her operations, and compelled to retreat precipitately, her egg is found together with the others; and she is often thus interrupted by the rightful owners of the nest, who may be seen to follow her, and attack her furiously in the air, as she hurriedly tries to escape from them. Indeed, it is not unusual to observe small birds, of various kinds, eagerly giving chase to the Cuckoo; and woe betide her if she happen to approach the breeding-place of a troop of Swallows!

A favourite resting-place of this bird is upon an isolated tree, which commands a wide prospect around; and, in such situations, the female Cuckoo, quietly sitting among the foliage, attentively observes the operations of the numerous smaller birds scattered around her; more particularly noticing those which are carrying about building materials, and marking the place of deposit. Hence it is that its egg is so generally met with in the nests of ground-building birds. "A pair of Wagtails," narrates Mr. Hoy, "fixed their nest, early in April, among the ivy which covers one side of my house, and reared and took off their young. A few days after the young birds had left the nest I observed the old ones apparently collecting materials for building, and was much amused at seeing the young running after the parent birds, with imploring looks and gestures, demanding food; but the old birds, with roots or pieces of grass in their bills, seemed quite heedless of them, and intent on their new habitation. Their motions were narrowly watched by a female Cuckoo, which I saw constantly near the place; but the Wagtails had placed their second nest within a yard of the door, and so well concealed amongst some luxuriant ivy, that the Cuckoo, being often frightened away, was not able to discover it. The intruder being thus thwarted in its design, the birds hatched their second brood, which was accidentally destroyed a few days after. In about ten days they actually commenced a third nest within a few feet of the situation of the second, with safety." Mr. Hoy conti-

nues—"I have repeatedly taken the Cuckoo's egg from the Wagtail's nest; in this locality it has a decided preference to it. I do not recollect finding it in any other, excepting in two instances, once in the Hedge Chanter's, and another time in the Redstart's nest.—In this vicinity, whether the Wagtail selects the hole of a hollow tree, a cleft in the wall, or a projecting ledge under a bridge, it does not often escape the prying eye of the Cuckoo, as, in all these situations, I have frequently found either egg or young."

The same observer remarks that "it appears to be usual for the birds in whose nests the Cuckoo may have deposited an egg before they have themselves begun to lay, to cast out the Cuckoo's egg;" and as that gentleman has bestowed particular attention on the phenomena of this interesting bird, he has doubtless observed some instances to warrant this remark; though somewhat at variance, by the way, with the general results of those experiments to which I have before alluded. "On one occasion," however, he says, "I had observed a Cuckoo during *several days* anxiously watching a pair of Wagtails building. I saw the Cuckoo fly from the nest two or three times before it was half completed; and at last, the labour of the Wagtails not going on, I imagine, so rapidly as might be wished, the Cuckoo deposited its egg before the lining of the nest was finished. The egg, contrary to my expectation, was not thrown out; and on the following day the Wagtail commenced laying, and, as usual, the intruder was hatched at the same time with the rest, and soon had the whole nest to itself."

Thus we perceive that no constant rules can be laid down, with respect to the subsequent proceedings of those birds to whose care the Cuckoo entrusts her egg; and I have purposely transcribed the purely unbiassed observations of a very accurate naturalist, rather than relate my own to the same effect, because the facts they embody impart additional probability to the supposition that the Cuckoo's egg requires some days to become matured for laying. It is further remarkable that this bird continues to produce eggs when in deep moult; but the number which it lays in a season is not easy to determine, even on anatomical examination, but is probably about seven or eight. The egg is scarcely larger than that of a Sky Lark, of a peculiar shape, equally obtuse at both ends. Its colour is sullied white, densely besprinkled all over with brownish specks, many of which are confluent, intermingled with some that are larger and darker; occasionally it is tinged with green, or sometimes reddish. There is always a peculiar character about it, which renders it at

once recognisable. We have next to consider the raising of the Cuckoo's young.

In many cases it will appear, from what has been already stated, that the young Cuckoo comes into the world alone, unaccompanied by nest-mates ; for as it requires the exclusive care and attention of its foster-parents, which (in general) have enough to do to provide for the almost insatiate cravings of their nurseling, means have been ordained for ridding it of the incumbrance of any fellow claimants. We have seen that the parent Cuckoo effects this object to a certain extent, but often incompletely ; so that its agency, very commonly, amounts only to reducing the brood of legitimate occupants of the nest, and consequently of diminishing the labour that devolves on its own offspring—the astonishing feat of ejecting every nest-companion.

This extraordinary fact was, I believe, first ascertained by the celebrated Dr. Jenner ; “ who,” as Wilson remarks, “ has since risen to immortal celebrity in a much nobler pursuit, and to whose genius and humanity the whole human race are under everlasting obligations.” The process is thus described by Mr. Selby :—Speaking of the Cuckoo's egg in the nest of the Meadow Pipit, that gentleman asserts that “ as the same period of incubation is common to both birds, the eggs are hatched nearly together, which no sooner takes place than the young Cuckoo proceeds instinctively to eject its young companions and any remaining eggs from the nest. To effect this object it contrives to work itself under its burden (the back, at this early age, being provided with a peculiar depression between the shoulders), and, shuffling backwards to the edge of the nest, by a jerk rids itself of the incumbrance ; and the operation is repeated till, the whole being thrown over, it remains sole possessor. This particular tendency prevails for about ten days, after which the hollow space between the shoulders is filled up ; and when prevented from accomplishing its purpose till the expiration of that time, as if conscious of inability, it suffers its companion to remain unmolested.” This narrative appears to be drawn up from those of Dr. Jenner and Col. Montagu, and may be verified by any one who can obtain a Cuckoo at the proper age. The story of the temporary depression between the shoulders, however, has no foundation, except in the attitude which the bird necessarily assumes.

Mr. Ord likewise suggests, and with judgment, as will presently appear, notwithstanding the positive assertion of Dr. Jenner, that “ there must have been some mistake in the facts related by that observant naturalist on the subject of the Cuckoo ; for I am unwill-

ling to believe," he adds, "that any bird as helpless as a young Cuckoo is, *before its eyes are open*, has the power, or even the inclination, to eject from the nest the young and eggs which it feels around it. Why should this feeble creature, so feeble that it cannot support itself upon its legs, wish to get rid of companions which in no respect incommode it, but which, on the contrary, add to its convenience? For it cannot be denied that a single bird, when first hatched, is less comfortably situated than when it is accompanied by nest-mates, the softness of whose down has a tendency to maintain that equality of warmth which callow young require. As to the ejection of the eggs by the newly-hatched Cuckoo, it cannot be the fact, the physical powers of the bird being inadequate to the purpose." It will be sufficient, among the numerous notices which, from time to time, have appeared in the natural history periodicals, being simple details of observations made without any ulterior object—that is to say, without design of substantiating or subverting any particular doctrine, to select and condense the following, as positive and satisfactory.

In the passage which I commence with quoting a supposition is involved, which, if well founded—that is, if it be true that the same individual Cuckoo is referred to—the ascertained fact would be fatal to a theory for which I have been contending. The curator of the Botanic Garden at Bury St. Edmunds relates that, on July 17th, a friend informed him that he believed that a Cuckoo had laid eggs in two nests of Wagtails in his garden, as he had seen, early one June morning, a Cuckoo leave the ivy in which a Wagtail had just built; and that on the following morning he had observed it to fly from a large crevice in a wall where he had lately found the second nest. He did not, however, take any notice of this at the time; but, having that morning accidentally discovered one of them to contain a large young bird and five small eggs, he was induced to take a peep at the other, where he found two larger eggs, with three eggs of the Wagtails. There can be little doubt that these were the produce of as many Cuckoos.

On July 20th—that is, three days afterwards, when the Cuckoo was necessarily *at least* so many days old—the two nests were visited: that in the ivy is reported to have contained a fine young Cuckoo, and four young miserable-looking Wagtails, together with a rotten egg; the Cuckoo occupying the centre of the nest, which was somewhat flatter (less cupped) than usual. On July 24th, or *seven* days from the first visit, the Cuckoo was found to be alone; but on searching about one of the Wagtails was found alive by the

side of the nest, and the three others on the ground beneath, quite dead. The living one was replaced, but on the following day this also was found dead on the ground. Here, then, we find that on the seventh, or perhaps eighth day, the last of the nest-mates could not have been long ejected, as it was still alive, and the others had probably only been turned out a few hours previously.

The other nest, in the wall, contained, on July 20th, three healthy young Wagtails and two Cuckoos, which appeared as if very recently hatched. I may remark that six is the ordinary number of eggs produced by the Pied Wagtail. Although there were two Cuckoos in this nest, the young Wagtails were even longer lived than in the other. On July 24th, or four days (at least) from exclusion, they were all apparently well, and growing apace; but the nest was much flattened and extended, and here the two interlopers were in the centre, with the rightful owners ranged around them. It appeared to be very fatiguing to the parent Wagtails to supply the youthful party with food, for which their calls were loud and incessant.

On July 26th, or (at least) six days from exclusion, all the young Wagtails were sitting upon the stones by the side of the nest; and, as the young Cuckoos appeared very hungry, a quantity of small worms, ant's pupas, and bread, were spread upon a board close at hand, with which the old birds stopped their cries.

On July 29th—that is, on the ninth or tenth day—one of the Wagtails was found dead beside the nest, and the others sat shivering on the ground beneath. They were again replaced; but on August 2nd they had disappeared, and were nowhere to be found. The young Cuckoos continued to thrive for some days, when they fell a prey to a Cat, which put an end to the observations.

Now, in this latter instance, the lives of the nestling Wagtails were artificially protracted, and it appears that the site of the nest was unfavourable for their expulsion by the young Cuckoos, which latter, at an early age, however, contrived to occupy the centre of the nest, the flat form of which, it is probable, also furthermore enabled the Wagtails to regain their station, whenever ousted. Still, it is evident that they remained for several days quietly together. In an instance which fell under Dr. Jenner's observation, of two Cuckoos being hatched in the same nest, after a long succession of alternate endeavours to expel one another, the stronger finally succeeded.

A nest on the ground may sometimes be so situate as to render it

impossible for the young Cuckoo to turn out its fellow nestlings ; an instance of which has been related to me, wherein four callow Wagtails were found dead, apparently starved, beneath the usurper of their abode. A friend recently informed me that he had found, with much surprise, after what he had read on the subject, a young Cuckoo and two Meadow Pipits, evidently several days old, in the nest together ; but on revisiting the place a week afterwards he found the Cuckoo alone. I could adduce two or three analogous instances. The truth appears to be, that the innate propensity of the young Cuckoo to oust its companions is first manifested when about six days old.

At the time of its exclusion, the nestling Cuckoo is covered with soft, whitish down, a circumstance in which it remarkably differs from its naked nest-mates. It exhibits, from an early age, much fierceness, raising its plumage, and buffeting at the hand presented to it, and jerking itself up and down in the nest, with a menacing gesture. Its growth is very rapid, extraordinarily so, considering its great development of feathers ; and its voracity is, accordingly, equally remarkable. It remains about three weeks, or sometimes less, in the nest ; and for a long while after it is flown its assiduous nurses may be seen to follow it with food, at times even alighting upon it with a morsel. "For some weeks," relates an observer, "did the deluded bird," a Robin, "follow her gigantic supposed offspring from tree to tree, and feed it with her favourite food ; and so anxious was the poor Redbreast to satisfy the cravings of her monstrous charge, that she became at length so tame that she would pick crumbs of bread out of the hand, and, after occasionally appropriating a morsel to herself, carry the rest to the Cuckoo, who seemed to devour it with great relish." Another account states that "a Cuckoo that had been hatched by a Water Wagtail appeared every morning, about nine o'clock, for nearly a fortnight, on the closely-shaven lawn in front of the house. Though strong enough to fly without difficulty, it would not assist itself by picking in the least degree, but would wait, with open mouth, till the Wagtail flew with the eagerly-expected morsel, which it greedily devoured. The avidity shown by this little animal, in attending to the wants of this usurper of its nest, was truly astonishing. It ran about rapidly in quest of food, and searched zealously and successfully ; for it was seldom long before it returned with something for its companion, with the feeding of which it seemed never weary. The disparity of size of the two birds rendered this display of maternal tenderness a little ludicrous." In these and some other instances

which have fallen under my observation, the Cuckoo was chiefly tended by the female foster-parent.

The anecdote which I next mention is a remarkable one. "In my neighbourhood," relates Mr. Ensor, "a tenant's son found a Cuckoo in the nest of a Meadow Pipit. He brought it home, and fed it on potatoes and oatmeal dough. In a few days two Wrens, which had a nest with eight eggs in the eaves, and just above the window fronting the cage in which the Cuckoo was placed, made their way through a broken pane, and continued to feed it for some time. The cage was small; and the boy, preferring a Thrush to a Cuckoo, took it away to give greater room to the Thrush. On this, the Wrens repaired to their own nest, and brought out the eggs that had been laid." The truth is, that the sight and imploring cries of a helpless, gaping nestling, excite the parental sensibility of most birds. I have seen a brood of ten Bottletits reared in confinement by a tame (male) Tree Pipit; and young birds may be seen to put food in the mouths of others, as soon as they have begun to pick of themselves. However, on placing a nest of little Goldcrests in the same cage with a Cole Titmouse, in the expectation that the latter would have tended them, the little caitiff took up one of them in his beak, and was about to eat it; but the Tits have most of the propensities of the Jays and Magpies, which are habitual devourers of nestlings. Generally speaking, the cry of a nestling suffices to excite the sympathy of small birds, of whatever species.

When the Cuckoo is able to fly, and has left the nest, the reverse disposition is generally, however, manifested towards it. "A Cuckoo flew from the nest on June 9th; and three days afterwards it was seen on the top of a wall in the immediate vicinity. While sitting here, an amusing and instructive sight presented itself. A Thrush, which probably had a nest close by, in an adjoining garden, evinced the most passionate and marked antipathy to the young Cuckoo, by approaching it with feathers ruffled, beak open, and uttering an earnest cry; some small birds, too, drew near, as if to exhibit their dislike and abet the Thrush."

In a very large proportion of cases, I have already intimated that the young Cuckoo is not even hatched at the time the adult birds leave us; notwithstanding which, some instances have been observed wherein maternal solicitude was evinced by this remarkable species. Thus, Mr. J. E. Gray, of the British Museum, affirms that he has himself seen a Cuckoo, day after day, visit the spot where one of its offspring was being reared, and which it finally

enticed away from its foster-parents. One or two analogous cases, of which I had been informed previously, I was disposed to consider as fabulous.

When taken from the nest and caged, this bird displays the utmost unwillingness to pick up its food, even for months after it would have been necessitated to shift for itself in a state of nature. In this it further resembles the Moth-hunter; and I may remark that that species, also, collects no sort of nest, although it incubates its own progeny. The Cuckoo is with difficulty kept through the first winter, generally sickening about February, if not before; but is more likely to do well after it has moulted. "Several persons of my acquaintance," remarks Montbeillard, "have reared and tamed them. They feed them on minced meat, either dressed or raw, insects, eggs, soaked bread, and fruit. One of these tamed Cuckoos knew its master, came at his call, followed him to the chace, even perched on his gun, and if it found a cherry-tree in its way it would fly to it, and not return till it had eaten plentifully; sometimes it would not return to its master for a whole day, but followed him at a distance, flying from tree to tree." It is very susceptible of cold, requiring particular care in winter; and it evinces the migrative impulse very forcibly. In general, it is a voracious and savage bird in confinement, and not to be recommended to those who are fond of pets: it will be a curiosity rather than a favourite. It is a troublesome species to supply with proper nourishment, and one which the naturalist only can observe with interest.

ON THE DATE AND ORIGIN OF THE PHONETIC ALPHABET.

BY G. M. MASON, M.A.

OUR knowledge of remote antiquity is derived from two sources, tradition and letters. The credit due to tradition is encumbered with the difficulty¹ of communicating facts correctly from one man

¹ A magistrate who daily observes the conflicting evidence of eye witnesses to the same and most simple facts, where neither passion or interest is concerned, will appreciate the force of this remark: where testimony is in-

to another, even where the communication is undisturbed by motive or passion; and that credit is indefinitely diminished where a suspicion arises that facts have been distorted by intention or interest. The credit due to narratives that have been orally transmitted through two or more generations, is charged equally with these objections, and with the additional suspicion of being mingled with the refuse that collects upon the tide of time. The distrust attaching to traditional information is reasonable, therefore, when it might have received the collateral aid of letters;² and, anterior to their invention, it will amount, in all extraordinary cases, to disbelief, or merge in vain or insoluble conjecture.

In extending our inquiry, therefore, into the early history of mankind, and of the art which above all others embellishes a state of civilization, we must reject as spurious, not only all admitted tradition, but much of that information which, though transmitted to us through the medium of letters, savours of the puerilities³ of

fluenced by motive, he has commonly to deplore the incredibility of evidence. Legal evidence is, indeed, a comment alike on the insufficiency of human organs to observe and to communicate events correctly, and on the integrity of human testimony.

"Jures licet et Samothracum
Et nostrorum aras, contemnere fulmina pauper
Creditor atque Deos, Diis ignoscentibus ipsis."—J u v. iii. 145.

A sentiment savouring stronger of the atheist than the good polytheist.

² Written documents are but traditions embodied in a less perishable form, and are preferable only in as much as they are less liable to alteration. The truth, however, of observation and of tradition often suffers in the transfer to written documents. Patriotism, vernacular creed, a spirit of controversy, conformity with a favourite theory, even the melody of an expression, is sufficient to move an author in sacrificing a portion of the truth, except in the demonstrative sciences, in which alone truth is attainable and unalterable. "Though there never were a circle or triangle in nature," says Hume, the truths demonstrated by Euclid would for ever retain their certainty and evidence," whereas "the contrary of every matter of fact is still possible."—*Inquiry concerning the Human Understanding.*

³ The earliest writers, whether in symbolic or phonetic letters, have luxuriated in the puerilities of vision and conjecture. The *Cosmogony* of Sanchoniatho introduces us to *Ἡερωγονεως* or the first man, אָדָם Adam, and confirms our acquaintance with the gods, and their mystic genealogies.—(See *Universal History*, vol. 1). The Vedas and the Shistah, or bible of the Brahmins, abound in marvels credible only by babes and sucklings. The authorities of Herodotus, Plutarch, and Pindar, exhibit the ludicrous and inhuman sacrifices connected with the early learning of the Egyptian hierarchy. The celebrated passage of the former author (book ii. cap. 46) challenges all foreign absurdity and indecency, and *γυναικὶ τὰ ἀγρία ἐπιόμιστο* is not transferable into the

the age, in which it is certain that letters had their origin. Our veneration for antiquity should be moderated by our desire for truth, and we should avail ourselves freely of the well-founded doubts with which chronology⁴ anterior to and for some time after the first Olympiad⁵ is everywhere obscured.

Our perplexity, which, on chronological⁶ distrust alone, is sufficient to render the vernacular languages of Europe. The crest of Sinai, hallowed by the presence of the real Jehovah, was defiled by one foot (the impression is still visible to the credulous eye of the Musselman) of the mighty camel which transported the apostle of God to the seventh or tenth heaven, into the presence of an ideal deity. Aleppo, Damascus, and Cairo in Egypt, have claimed the remaining three feet of that veritable beast, whose incarnation was of five or six hundred miles by geographical inference, and whose bulk, impelled on dusky vanes, must have eclipsed the orb of day. "The medley of pagan idolatry and fabulous superstition," (*Ency. Brit.* art. Confucius) "of the Chinese, the mortal-infant-god Lama of Thibet" (*ibid.* see Lama), "and the unparalleled legends of the christian monks of the dark ages of modern Europe, all (not to accumulate instances) justify our distrust in the written documents of early authors. We cannot, however, pass over the congregations of Ida and Olympus, which, though they might exercise a salutary influence over the uneducated mob of Greece, must have excited the aversion and contempt of her philosophers. The pious of later ages receive with a smile or reject with disdain the theologies of Homer and Hesiod.

⁴ "If we admit the common chronology," says the eloquent and luminous historian of Greece, Dr. Gillies, "there is reason to believe that the scattered fragments of Grecian history were preserved, during thirteen centuries, by oral tradition."—(Vol. i. 8vo, note 3). Again, "All this," say the writers of the *Encyclopædia Britannica*, after having summed up the causes that perplex historic chronology, "has thrown so much obscurity over chronology, that it appears to be beyond all human capacity to disperse it." (art. Chronology.)

⁵ The date of the first Olympiad is a matter of discussion amongst the learned, and Sir Isaac Newton, in common with many other eminent men, has dispensed with the first twenty-eight Olympiads, or a period of 112 years, and dates his first 776 years B.C. But even this date must rest during 250 years on tradition, if we attach credit to Pliny—*Nat. Hist.* v. cap. 29—that alphabetic writing commenced (we suppose in Greece) about six centuries before Augustus.

⁶ "The first prose writers, or more properly the first *writers*, were Pherecides of Syros, Acusilaus of Argos, Hellanicus of Lesbos, Hecataeus, and Dionysius, both of Miletus, the last of whom flourished in the 65th Olympiad, or 520 years before Christ."—Gillies, *ibid.* That the history of the Trojan adventures and heroes, which occupied the attention of mankind till the period of the above-mentioned authors, was traditional, and consequently inauthentic, is to be concluded from the following remarks of Heyne, in his learned *Excursus ad Æneidos librum secundum*:—"Aliquamdiu res Trojane communi aliqua inter scriptores consensu erant traditæ, prout ab Homero et poetis cyclicis, ex majorum *fama* ac *narratione* hoc est *poeticâ* fuerant expositæ." Here, then, the fountain of all this history is admitted to be tradi-

ciently distressing, is further aggravated by the mystery in which the authenticity of the early writers is involved. The very existence of Orpheus, of Sanchoniatho, and of Homer, has been debated by the erudite with all the warmth of polemical ingenuity, and the premises on which our arguments should have found rest are insufficient to sustain the gentlest breath of discussion. The Holy Scriptures themselves have been a rallying point round which even believers have exhausted the sources of ingenious and pernicious⁷ criticism ; and the conflict has been maintained to the present day by the perversity of some, and the imprudence of others, whose ardour in the pursuit of truth has well nigh shaken the only unmovable⁸ basis on which, as we are told, truth itself is founded.

tional. Attend to the following :—“ Sed cum poetices honos inter græcos frequentari cæpisset, essentque primum, qui sigillatim particulam aliquam ex toto illo cyclo mythico decerptam carmine tractarent *ornarent* et delectationis causâ *variarent*, tum alii imprimis lyrici, qui carmina sua *suavibus episodii distinguarent*, ex eo tempore res Trojanæ quasi materiæ poeticæ loco esse cæperunt, quâ ingeniosi homines in *quæcumque formam diffingendâ* uterentur, unumque id propositum haberent ut cum *probabilitate aliquâ delectarent*.”—He then goes on to deplore the additional confusion that ensued with the dramatic poets, and especially the Grammatici of the Ptolemæan schools, *quæ omnia miscuit et turbavit* (Apollodorus, in his *Bibliotheca*, still extant, Lysimachus of Alexandria, and others). Those who after these handled this subject, “ omnia inter sese miscuerunt totamque adeo veterum mythorum turbaverunt, ut in plerisque difficile sit perspicere, quid ac quantum veteris vel philosophiæ, vel religionis, vel historiæ, vel prisci sermonis, iis subesse credendum sit.” After attributing these confusions to the commentators on the poets, he proceeds to reproach the philosophers, the sophists, and the rhetoricians, with a share of the blame. The historians who followed are accused of accommodating these mutilated fragments to the probable arrangements of history. The Greeks, after their subjugation by Rome, and their descendants of the middle ages, are severally charged with having further confounded the Mythic and the Trojan cycles, which at length became mixed up with the conceits of allegory and the visions of astrology. Such, and in such keeping, do we find the argonautic, the Trojan, the Thebaic, and other histories of mankind, prior to and after the introduction of phonetic letters. That dates have been assigned by the moderns to such a mass of fables and confusion, subserving their own high purposes, excites neither surprise or censure—the field remains open, and is unworthy a contest.

⁷ “ The prodigious difference there is between the Septuagint (or Greek bible), and the Vulgate (or Latin bible), occasions an embarrassment it is the more difficult to avoid as we cannot positively say on which side the error lies. The Greek bible counts, for example, from the creation of the world to the birth of Abraham, 1500 years more than the Hebrew or Latin bibles.”—*Encyc. Brit.* art. Chronology.

⁸ When the succeeding quotation is subjoined in reference to an event in which the whole human race is supposed to be interested, and to which hea-

Having, therefore, disengaged ourselves from the embarrassments of a disputed and suppositious⁹ chronology, and tempered it into a more plastic material on which to exercise rational conjecture, adhering to the first Olympiad (776 B.C.) as the affixum with which to compare dates prior and posterior, and holding all anterior knowledge as partaking of the character of tradition, we shall proceed to the remaining source from which we draw our knowledge of early antiquity, and which constitutes the subject of our inquiry—*Letters*.

Letters, not to enter into over-nice distinctions, are, or rather were, of two kinds, Symbolic¹⁰ and Phonetic.¹¹

It would be idle to demonstrate the difficulty of perpetuating information by a symbolical or figure writing; the inapplicability of

ven itself is a party, it will appear the more reasonable to distrust chronology on matters of minor importance. "Christianity itself had subsisted near 1200 years before they knew precisely how many years had passed since the birth of our Saviour." "Abbé Dennis the Little, who, in the year 532, was the first among the christians to form the æra of that grand epoch, and to count the years from that time, in order to make their chronology altogether christian, erred in his calculation, and led all Europe into his error. They count 132 contrary opinions of different authors concerning the year in which the Messiah appeared on the earth. M. Vallemont names 64 of them, all celebrated writers. Amongst all these authors, however, there is none that reckon more than 7000, nor less than 3700 years; but even this difference is enormous. The most moderate fix the birth of Christ in the 4000th year of the world."—*Ibid*.

⁹ "The historian Timæus, who flourished in the time of Ptolemy Philadelphus, 280 B.C., first arranged his narrative in the order of Olympiads, which began 776 B.C." (i.e. before Augustus closed the temple of Janus, as an emblem of universal peace, our blessed Lord being then five years of age).—"His contemporary Sosibius gave a work entitled *χρονων αναγραφη*, Apollodorus wrote his *συνταξις χρονικη*: and on such chronology rests the credit of all later compilers, as well as the Arundelian marbles, which were composed 264 years B.C."—Gillies' *Greece*, note 3. What were the materials on which Timæus, Sosibius, and Apollodorus, founded their chronologies, we have laid before the reader in note 6; we should entertain a humble estimate of the inductive powers of him who can receive them otherwise than as the conjectural chronicles of the *Heroic Legends*, or as parties of pleasure into the fields—of time.

¹⁰ The varieties of this kind of writing, hieroglyphic, symbolic, and hieroglyphic, are descriptive of picture writing, or at least of a method of communication amongst the priests alone, and never could have merited the eulogy of Pliny, applied by him to the phonetic letter, "quo usu maximè humanitas, vita, constat et memoria."

¹¹ For the use of those who have not destroyed time in the pursuit of obsolete languages, the word phonetic implies "of or belonging to the voice," *φωνη*, phone.

which to the expression of time, place, and abstract notions, reduces it to the dilemma of historical painting, and, like it, subject to the fanciful interpretation of the reader. We shall dismiss, therefore, this kind of letters, by observing that it is more than probable that to this species of letter the very early allusions to book-making¹² have reference. That it was the symbolic writing in which the priests of Egypt embodied their sacred mythologies, we have the best testimony the subject admits; and there may be no impiety in supposing that it was adopted¹³ under the "divine legation of Moses."¹⁴ The singleness of interpretation might be preserved inviolate in the sacred college of the tabernacle, where the subject was one and immutable, while the ever-varying themes of active life would demand a less equivocal medium of communication.

We arrive, then, at that particular variety of letter to which this paper is devoted, which fulfils every intention of the inventor, and which has been embraced by nearly all the nations of the earth; it is based on an accurate knowledge of the connection of the two master senses¹⁵ of the animal machine, and a just estimate of the operations of the brain; it has imitated and extended, by a nice observa-

¹² It would be unreasonable to suppose that even symbolic writing could have existed without materials on which to employ it. Those best suited to a phonetic alphabet had no doubt been invented by the priests of Egypt for the reception of the symbolic writing, long anterior to the discovery of the former kind of letter. Stones, bricks, leaves, and bark of trees, plates of lead, wood, wax, and ivory, might have received the mysterious characters of the hierarchy at a very early period, and suggested a sort of book-making that would facilitate the completion and communication of the more useful discovery. The works of Hesiod, after the discovery of the phonetic alphabet, are said to have been inscribed in tablets of lead in the Temple of the Muses in Bœotia; and the laws of Solon to have been written on tablets of wood (though most probably for the convenience of the public, as that lawgiver died only 558 B.C.) in all probability after the discovery of Papyrus.

¹³ Some divines have stoutly maintained that letters were coeval with, and even anterior to, Noah, but such an opinion proceeds neither of the schools nor of the sanctuary; and that great astronomer, Sir Isaac Newton, when he ventures an assertion that they were known for several generations in the family of Abraham, must have intended the pictorial and not the phonetic letter. The land of Ur, 𐎠𐎺𐎠 fire (of the Chaldees), the native place of that patriarch, had in all probability, been early acquainted with an art which symbolized ("the afterwards forbidden thing") the god of fire, or the great luminary of the visible creation, to the fathers of the chosen seed.

¹⁴ "The author of the *Questions and Answers ab Orthodoxos* tells us, and that, therefore, Moses was as well instructed in this hieroglyphic learning of theirs (the Egyptians) as in their mathematics."—Cudworth, cap. iv. xviii.

¹⁵ The eye and the ear.

tion of *their* respective functions, a faculty¹⁶ which is enjoyed by man alone, and elevates him above the animated world ; it has given, by an almost miraculous felicity, sound to the eye and sight to the ear ; it has perpetuated man's transient and feeble voice through time indefinite and space without bound ; has connected in a silent language the nations and generations of man ; and out of his natural has compounded an¹⁷ artificial faculty, that concentrates the wisdom of the species within the grasp of the individual.

We cannot for a moment suppose that such an art was discovered by a savage people, whose mode of life or hypothetical creed secluded them from intercourse with their neighbours : such a people would least of all have suffered from the want of it, and were least likely to move themselves in its invention ; and on this consideration it has, with general consent, been attributed to a¹⁸ maritime people, whose pursuits connect them with adjoining and more distant tribes.

¹⁶ The power of articulation.

¹⁷ A phonetic letter (*καθολεκωσ*, a letter) is a visible sign to denote a specific sound of the human voice. This sign is addressed to the eye, and through it is received on the brain, as the *sound* which it is agreed to denote. A combination of these visible signs is, in like manner, received through the eye on the sensorium as a combination of such agreed *sounds*, or as a *syllable*, the constituent part of a word. Aristotle has said "words are marks of thoughts, letters of words," a sentence which imperfectly conveys the *function* of a letter ; nor does the description of Mr. Astle analyze its operation, when he describes words as "sounds significant, and letters as marks for such sounds." But St. Augustine seems to have approached nearer to a definition in his distinction between visible and audible language : "Signa sunt verba visibilia verba signa audibilia."—"Signs are visible words, words audible signs."

¹⁸ Prior to the time of David, the coasts of the Mediterranean belonged to a people at once warlike and commercial, from Ascalon to Sidon ; and the last four battles fought by David with the Philistines left the victory undetermined. We are left to conjecture, then, that the best result would be an armistice or a suspension of national inveteracies. The dominion of Tyre was unbroken, and the commercial treaties of Solomon and Hiram imply the independence and equality of the latter during the most influential period of the Jewish domination ; and it may be inferred, from the same premises, that the former of those potentates was not in actual possession of the coasts of the Great Sea during that period. After the death of that judicious king, the divisions of Judah and Israel prepared them for subjugation under the successive yokes of the eastern and western empires of the world ; and they are thenceforth, with some plea of human reason, as well as by divine dispensation, received as the "*despectissima pars servientium*" of the human family. It may be suspected [KINGS i. cap. iv.] that the influence of Solomon on the shores of the Mediterranean was derived from matrimonial alliances rather than from success of arms.

Nor is it probable that men whose navigation was confined to contiguous coasts would be prompted to so philosophic a discovery :

“ Qui fragilem truci
Commisit pelago ratem
Primus.”

Those who first ploughed the angry deep on the fragile bark were moved by no such exalted conceptions. The failure of provisions, or the power of a dominant tribe, the desire of new possessions or of plunder, the gratification of animal appetite, the freshness of the rude wave, might indicate emigration, gratify cupidity, or feed the adventurous passion of a maritime tribe ; and the islands and coasts of the Mexican Gulph have afforded to the modern philosopher a lively picture of the ancient Cyclades and the shores of the Mediterranean. But it cannot be supposed to have been in the infancy of navigation that the want occurred, or the attempt was made, to invent a telegraphic language between nations and ages. The first purposes of navigation discountenance the supposition, and the piratical practices of the Ægean Sea are commemorated by Thucydides as anterior to the adoption of commercial enterprize. When men, however, having discouraged predatory navigation hitherto pregnant with glory and renown, “ went down to the deep in great ships” in the pursuit of legitimate gain, they would find their councils thwarted, and their efforts defeated, from the want of an art whereby to record the varying transactions of commerce. The symbolic or figure writing, which amply, perhaps perfectly, supplied the exigencies of the temple, would be found inefficient in describing and prizing the multifarious commodities that passed through the stores of merchants engaged in the transport of the produce and manufactures of distant shores ; and the pernicious errors arising out of a verbal correspondence through the medium of agents unprepared with an efficient instrument of recording contracts, would stimulate the invention with a permanently increasing impetus.

On these suppositions, those who have engaged in the inquiry have generally attributed the invention of signs for the sounds of the human voice to a commercial among the maritime people of antiquity.

The sequel of our inquiry will naturally enough divide itself into First, the particular commercial people ; and Secondly, the æra to

which conjecture may attribute the invention of the Phonetic Alphabet.

A reference to the chart of the ancients will assist us in forming an estimate of the several claimants to our attention amongst those commercial states which early distinguished themselves on the borders of the Mediterranean; and a geographical examination of that great gulph which separates the three quarters of the old world, and of the navigable rivers and seas which either flow into it or approximate its coasts, will facilitate a correct estimate of the relative sources of commercial prosperity of which each of those claimants was possessed. A careful inquirer will enrich his subject with a due consideration of the political and religious, as well as mercantile character of these states, as well as of the countries, however distant, that might pour their stores, through these channels, amongst the inhabitants of its shores.

The palm of having invented the Phonetic Letter is contested by four of these states: Carthage and Greece have asserted their claims against Phœnicia and Egypt.¹⁹ It will be well to follow the probable order of chronology, and to concede to the antiquity of Egypt the privilege of a prior examination.

Egypt is connected at her northern extremity with the southern coast of the Mediterranean, by the river Nile, which, flowing through a valley of 150 leagues in length and of various breadth, afforded throughout an easy navigation to the small craft of antiquity. The annual overflowing of this river is known to all, and its shores were alternately a sea of inundation, a quagmire, a luxuriant valley, and a dusty desert; and the culture of them seems, from the earliest periods, to have occupied the principal attention of their inhabitants. This valley is divided, on the west, from the interior of Africa, by burning deserts; and from the western arm of the Red Sea by a desolate region of three days' journey, which, however, has from time immemorial been passed by caravans of Arabs, which, by an overland passage, have kept open the only channel of intercourse between Egypt and the Indian Ocean. On the south the precipitous mountains of Abyssinia precluded all commercial communication.

Unconnected, therefore, on the south and west with civilized na-

¹⁹ The claims of Chaldaea are so slightly founded as scarcely to merit attention; nor are the inhabitants of Europe at present in possession of oriental information that will disturb the inductions afforded by a careful contemplation of the works of occidental antiquity.

tions, and almost shut out by the desert plains and mountains of Arabia, and the dangerous navigation of the Red Sea, from intercourse with the nations of the east, the commerce of Egypt has at all times been directed principally into the Mediterranean. But the maritime spirit of the people has immemorably bowed under the debasing yoke of an artful priesthood, whose policy²⁰ has discouraged foreign communication; and the transport of her superabundant produce has been abandoned to the enterprizing people who have occupied the more northern²¹ ports of the Mediterranean, or to the Arabian tribes which, traversing the bladeless deserts, have supplied²² the eastern provinces of Palestine and of Arabia, and the shores of the Red Sea, prior to all written record.

To the agricultural energy of her people, to the exuberant fecundity of her valleys, to a grovelling and arbitrary priestcraft, and the despotism of a regal hierophant, may be attributed at once the architectural splendour and the mental degradation of the Egyptians; and at no period of history have they distinguished themselves by that spirit of foreign enterprize which has led mankind to award *them* the glory of having invented the Phonetic Alphabet. Nor can we conjecture any reason that could prompt their priesthood²³

²⁰ A benevolent mind turns in abhorrence from the contemplation of that general misery resulting from a false and a base policy, which impedes the perfection of human reason, and which only in degree distinguishes the priests of ancient Egypt from those of *coeval* states.

²¹ From Tyre to Marseilles and Cadiz.

²² The reader of Holy Writ may call to mind the journeyings of Abraham, of the brothers of Joseph, and of their father Israel. Partial famines in Palestine have immemorably been relieved by the exuberant stores of Egypt. The same species of commerce is to this day followed over the arid sands of El Tye to the port of Kaira; and the mountains of Sinai furnish to the inhabitants of Egypt a considerable value in dried fruits and other produce which requires a lower degree of temperature for their perfection than is afforded on the shores of the Nile.

²³ In confirmation of this opinion, that a phonetic alphabet was discovered amongst the laity, it may be suggested that, had it been invented amongst the priesthood, it would have been appropriated to the use of the sacred orders, and carefully withheld from the people. The Brahmins of this day possess and hold secret a phonetic letter, for the diffusion of which the people of India will probably be indebted to the energy of modern Tyre, which holds the coasts and commerce of Hindostan. The learning (does language possess a sound descriptive of the contempt in which such learning ought to be held?) of the Egyptian priests, was rigidly monopolized by those perverters of truth. That of the Phœnicians was preserved in the ark of the Temple of Jao, from which Sanchoniatho composed the stupid mysteries with which his *Cosmogony* abounds. The hallowed secrecy of the Eleusinian

to the discovery of an art that would lay bare the nakedness of the altar, and expose the depression of its votaries, the hieroglyphic or symbolic, fulfilling the double intention of a sacred letter, secrecy and discretional interpretation ; and we are justified in our conclusion by historic testimony, which commemorates Manetho, their earliest historian, in the year 260 before the æra assigned to Christ.

The claims of Carthage may be referred to the parent state of which she was a colony, and our research from the shores of Africa will be directed upon the title of Greece.

The bays, creeks, and promontories, by which the shores of Greece are everywhere indented and protected, and the innumerable islands which are spangled over the Ægean waters—

“ Bacchatamque jugis Naxon, viridemque Donymsam
Olearon, Niveamque Paron, sparsasque per æquor
Cycladas.”—*Æneid*, lib. iii. 125.—

rising on the vision, and offering temptation to the navigation of the ancients, at first sight excite the sentiment that here was the cradle on which the infant craft of the mariner was rocked into maturity. The coasts were divided amongst innumerable independent tribes of shepherds or pirates, equally ready to dispossess each other of a settlement, or to retire from a district to which they were attached only by the produce of the soil. The facility of inland and transmarine emigration inspired a character of adventurous enterprize ; and the coasts of Greece, of Asia Minor, and of the Ægean Islands, are stated to have been peopled with piratical hordes, which struck terror into the inhabitants, and levied contributions at discretion ; and tradition has decorated the brow of Minos²⁴ with the laurel of having suppressed a custom subversive of social security.

Some time after this event,²⁵ Agamemnon, king of Argos, con-mysteries and of the Etruscan augurs, the dismal seclusion whence issued the fatidical ravings of the sibyl :—

(Ex adyto—Cumæa Sibylla,
Horrendas canit aubages, antroque remugit ;
Obscuris vera involvens.)

bear testimony to the exclusive policy of the ancient priesthoods ; and the Scriptures of the Old and New Testaments, under the old and new dispensations, were carefully concealed from vulgar curiosity till after the Reformation of Luther.

²⁴ Κατασπάντος δὲ τοῦ Μινῶ ναυτικὴ πλωιματικὰ ἐγένετο παρ' ἀλλήλους, &c.—*Thucydides*, 1, 8.

²⁵ The grave sarcasm of Cervantes has afforded us a type of the chivalry

voked an armament of subjects and allies, and undertook the memorable expedition to Troy,²⁶ which, if it be only a flight of imagination, has inspired the youth and warmed the age of succeeding generations. Prior to this celebrated armada, the expedition of Jason²⁷ and his colleagues in quest of the golden fleece has been handed down to us in song and tradition, and was probably founded on a mercantile enterprize of some importance from Greece to the Euxine Sea, which would rival, in the estimation of contemporaries, the once-thought-eutopian voyage of Columbus.²⁸

Nor was the maritime spirit of the primitive Greeks depressed by civil or religious regulations of a character to circumscribe its first adventurous essays. Unlike the embodied hierarchy of Egypt,²⁹ which held down a single people under a single crosier, *their* religion was exercised with independent and paternal piety in the petty tribes that occupied the mountain and the valley, uncontroled by the *rod of magic* or the sceptre of despotism. The most daring and most fortunate hero directed the destinies of his tribe, and discharged the patriarchal functions of priest and parent with the common approbation of his people; and this primitive polity and piety must have served them long ere the establishment of a common oracle had condensed the faiths of all into an identical mythology. Several circumstances, however, retarded the commercial prosperity of

of ancient Greece and of modern Europe in the valorous knight of La Mancha, whose Dulcinea del Toboso is not less a divinity than the Spartan Helen, at whose altar the Grecian heroes sacrificed a long ten years of hardship and adventure. Thucydides (Book 1, 9) rejects the fable and reserves the *probability*.

²⁶ The decision of Mr. Bryant, that such a war never existed, and the inferences arising out of the learned *Excursus* of Heyne, alluded to in note 6, class the whole history amongst the legends of poetic fiction.

²⁷ Every lover of classic lore (there are perhaps too many of them) will lament the fate of the gay and glorying Argo, which, fabricated by the immortal Gods, and freighted with the chivalry of Greece, waving her banners on the black waters of the Euxine, and ushering civilized to savage man, is foundered by the breath of remote and inevitable truth, and doomed to the fanciful regions of epic conception.

²⁸ *History of America*. The lover of romance may rest from the pursuit of fiction while he indulges in the *history* of marvels subdued to the tone of truth, and embellished by the hand of Robertson.

²⁹ At an early period, however, the pretensions of the oracle at Delphi were sustained by the superstition or policy of the Amphyctionic council, and the temporal edicts of the Grecian magistrates confirmed the eternal decree of the God of Day.

Greece, notwithstanding these advantages, which seem sufficient to have secured her maritime ascendancy.

The Gods³⁰ of Phrygia avenged the disasters of Troy, and the triumphant heroes of Greece were scattered in unknown regions, or fell by the hand of domestic treason; the attention of the powerful was withdrawn from commercial speculations to the recovery or establishment of kingdoms and dominions, and the regal enormities that fired the imagination of the dramatist diverted the people from a useful art, natural to an insular and maritime region. Seven centuries elapsed from the Trojan to the Peloponnesian war, during which the commerce of the Mediterranean was engrossed by an adventurous tribe insignificant as a nation amongst men, and afflicted by the especial wrath of the deity.³¹

Nor were the intestine calamities of the Greeks counteracted by their local advantages. The conformation of their coasts was, it is true, eminently calculated to encourage early navigation. The harbours, creeks, and small rivers, with which they were minutely intersected, furnished ample employment for the light craft of a coasting trade; but they were cut off from all communication with the nations of the east by the entire breadth of the Mediterranean Sea, which, in the infancy of navigation, must have been an almost insurmountable obstacle to mariners who seldom ventured beyond the sight of land,³² and who, even if they had overcome that difficulty, would have learned the Indian route by sea or land later than the inhabitants of Egypt or of Syria; and when in possession of its knowledge, had no terri-

³⁰ In an argument conversant with the materials of antiquity, it is difficult, perhaps painful, to abjure the aid of a machinery by whose means truth, if it be not illustrated, is, at least, rendered more attractive.

³¹ It must not, however, be forgotten, that the obstinate disobedience of the chosen seed had fanned the wrath of Jehovah into a denunciation which was fulfilled to the letter. The Philistine and the Canaanite were left as a thorn in the side of Israel; and it would not be easy to establish the assertion of some commentators, that the sea coasts of Palestine had ever been subjugated by the HEBREWS.

³² The modern improvements in navigation are attributable to the discovery of the magnet, (as is generally supposed) by Flavio Gioia, a Neapolitan of the thirteenth century. The discovery might interest a few friends, or assist in the aggrandizement of a family, but the whole human race owes a debt of gratitude to a man through whose agency national and religious prejudices are lapsing into harmony and toleration. The discovery of a few imponderable and invisible agents of nature is heaving up the whole system of ancient socialism, and a vast moral excellence is following upon the physical discoveries of the eighteenth and nineteenth centuries.

tory through which they could establish a commercial intercourse with those distant countries.

Nor was the enterprise of the Greeks stimulated by the proximity of a northern market for the luxuries of India. The inhabitants of the boundless and desolate regions of the north easily supplied by domestic art and industry the simple exigencies of a pastoral life, and were uncivilized, in those early times, below the consideration of mercantile adventure. The mountains of Thrace and Macedonia³³ precluded an intimate communication with those districts; and the distant voyage of the Hellespont, the Euxine, and the Danube, was interdicted by ferocious hordes of barbarians, more ready to plunder³⁴ than to purchase the costly manufactures of civilized nations.

Greece, therefore, did not occupy that central position between the producer and the consumer essential to the possession of a commercial monopoly. In after ages, the grandeur of³⁵ Venice and Genoa, of Livorno and Pisa, arose out of the incipient luxury of the same regions, which, in Grecian days, were conversant only with the arts of savages or of shepherds.

Not so the Phœnicians : driven from their piratical ascendancy³⁶

³³ In countries uncivilized by the arts and manufactures, it has been found impracticable to establish commercial intercourse with mountainous districts, the inhabitants of which retain pertinaciously and bring into civilized communications the predatory habits and morals of their recesses. The mountains of Wales and Scotland offer few temptations at this late period to mercantile enterprise; and the commerce of Geneva is confined principally to the northern banks of the Lake of Lemman, the gentle slopes of which are advantageously contrasted with the precipitous and threatening heights of the Alps, which are based on its southern border. The Welsh, the Scots, and Savoyard mountainers are in bad note on the ledgers of the British and Swiss manufacturers and merchants.

³⁴ The Black Sea acquired its ancient appellation as well from its tumultuous waters as from the no less fierce wanderers that inhabited its shores; and the title *ἄξιμος*, *axenos*, or inhospitable, is perpetuated in the days of civilization under the corrupt epithet of Euxine.

³⁵ They arose out of the taste for arts ingrafted into Europe by the remnant of fanatics who had returned from the rescue of the holy sepulchre, and which was the only salutary result of the ill-conceived, the ill-conducted, and the ill-fated crusades : this taste was gratified by the encouragement of the Indian trade, over land and by Egypt. The merchants of the towns named in the text established the arts of commerce throughout the north, and allying themselves to the potentates of Europe, wore out a prejudice which had excluded the pursuit of merchandize from all consideration under the military despotism of Rome.

³⁶ Καὶ οὐχ ἴσσαν λησταὶ ἦσαν οἱ νησιῶται, Κἄρῃς τε ὄντις καὶ Φοίνικες, οὗτοι γὰρ δὴ τὰς πλείστας τῶν νήσων ἄκισαν.—*Thucydides*, Α η. "The islanders also were

over the islands of the Ægean, we meet them on the sacred shores of Palestine ; and the readers of Holy Writ will recognise in the sons of Anak³⁷ and the denounced Philistine,³⁸ in the Canaanite and the Sidonian, the aboriginal mariners of the Mediterranean Ocean. The Word of Jehovah and the legends of the heathen attest the maritime pre-eminence of the merchants of Sidon and Tyre, of Askalon and of Joppa ; and it is interesting alike to the geographer and the historian, the devout and the philosophic,³⁸ to trace the causes of that opulence which raised the Grecian buccaneer to the Phœnician merchant, and placed the devoted Tyrian amongst “the honourable of the earth.”

The district that lies between the precipitous front of Lebanon and the Mediterranean Gulph does not exceed the width of a few miles, and yields its produce with reluctance³⁹ to the labour and ingenuity of the husbandman, or offers a scanty pasturage to the inglorious shepherd ; and the first settlers on its coast would with difficulty establish a colony without the aid of navigation. The inaccessible heights of Lebanon presented a boundary the subjugation of which would appear useless,⁴⁰ and beyond which conquest would

not less addicted to piracy and plunder, being Carians and Phœnicians, and these inhabited the greater number of the islands.”

³⁷ The learned biblist Bochart tells us, that the most probable etymology of Phœnicia, or Phœnice, is Phene ΑΝΑΚ, *i.e.* descendants of Anak.

³⁸ That the Phœnicians inhabited Askalon, a principal city of the Philistines, we have the testimony of Herodotus ; and that the inhabitants of Askalon were of sea-faring habits is also to be inferred from the same authority : and he attributes the establishment of the worship of Venus, both in Cyprus and in Cytherea, off the coast of Peloponnesus, to that maritime people, the *επιπλοῦν* applies especially to Askalon, as does the *ταυρῆς* of the succeeding sentence—*ἐκ ταυρῆς τῆς Συρίας εὐρεῖα*.—*Herodotus*, Book i. 105.

³⁹ The plains of Esdralon, of Galilee, and of Jordan, as well as those on the coast, rapidly decline into a state of sterility if neglected by the hand of art ; and lying low, are, in the hot season, denuded of pasturage, which, however, is renewed as suddenly by the fall of rain, or perhaps a reduction of temperature.—*Burkhardt and Buckingham, passim*.

⁴⁰ The mountains of Lebanon are of various aspect : the Peak of Sanin is majestic ; his feet washed in the ocean, and uprearing his hoary and time-stricken head into the presence of his maker, he seems to have inspired, since time was, the rapt enthusiasm of the poets, and the impetuous rhetoric of the prophets. Winter on his brow ; his shoulders clad in the mantle of autumn ; spring around his loins, and summer at his feet ; he stands 5000yds. above the waters : and yields in the same region, and in the same month, the vegetation of the four quarters of the globe and the four seasons of the year. The plains pressed by the industry of man yield, in places, corn, barley, cotton, maize, sesamum, silk, oranges, bananas, lemons, peaches, apricots, and figs.

be hopeless : but the spirited efforts of the mariner would early discover the value of a station centrally situated between the coasts of Asia Minor and Greece on the north, and of Egypt and Libya on the south. A short acquaintance with this sterile shore would satisfy the enterprising trafficker that the produce of the mountains and plains of Syria and Palestine, and perhaps the manufactures of Mesopotamia, of Persia and of India, might afford them a lucrative source of exchange with the people of the west ; and the sacred or accursed love of gold would, in due time, discover the proximity of the two arms of the Red Sea,⁴¹ through which he might establish a maritime connection with the hives of Persia and Hindostan. A more intimate acquaintance with this devoted coast would extend his vision over the stores of Caucasus and the Caspian, which, conveyed south down the Tigris and Euphrates, have found their way, in all probability, from remote antiquity, across the great desert to Damascus and Tyre.⁴²

The markets of the Mediterranean were easily accessible to the descendants of a race of pirates, who, from Phœnicia, commanded the opposite shores of the Great Sea, inhabited, even at that early period, by people⁴³ initiated in the arts which subserve the elegance and ease of

The base of the mountain presents, at seasons, pasturage, olives, tobacco, vineyards, and douna. The more elevated ranges have been rendered prolific by the art of husbandmen, and apples, pears, plums, with corn of various kinds, and the fruits above enumerated, are reared in appropriate patches of land. Brambles, firs, oaks, and a solitary group of time-worn cedars, occupy the heights, while the crest of the ridge lies wrapt in a robe of unsullied snow. The present desolation of the plains, and the culture of these fearful recesses, seem alike to reproach the tyranny of the Turkish lord, who drives the husbandmen into the fastnesses of the mountains, to avoid his restless and insatiable extortion. The mountains did not, in all probability, in old times, offer the temptation they would now present to adventurers.

⁴¹ Herodotus, in his first chapter, derives the Phœnicians originally from the coasts of the Erythræan Sea. "Τουτους γαρ απο της Ερυθρης καλιουμινης θαλασσης απικομινους," &c.

⁴² Read the elegant translation of the xxviii chapter of Ezekiel, in Volney's *Egypt and Syria*, chap. xxix.

⁴³ Speaking of the ancient Etruscans, who, prior to the establishment of the Roman power, are said to have occupied the whole of Italy, Denina says— "Il tempo della maggior grandezza loro è difficile a determinare ma se punto meritanio riguardo le opinioni dei cronologi in tempi così rimoti, abbiamo da credere ch' essi passessero in Italia circa dugent anni dopo la guerra di Troja, e piu di dugento avanti la fondazione di Roma." Mr. D'Hancarville, in a learned dissertation on architecture, prefixed to the *Antiquités Etrusques*, Paris, 1785, considers that the Tuscan order was the first invented, and taken by the Thyrreanean Pelasgi, and imported thence into Athens. "Nous soupçonnons donc que l'ordre Toscan, inventé la première de tous, remonte a

man. The indigenous products of all the shores of the Mediterranean very much resemble each other, and, except in occasional or partial failure of crops, would allow of little interchange; but the earliest merchants would readily discover the avidity with which rarity and novelty are sought by those who have made the first advances in civilization. The fine cloths of India, the glass and scarlet robes of Tyre, the gold of Ophir, and the iron of the Chalybes; the dried fruits of Palestine, of Syria, and of Sinai, the spices of Arabia and Hindostan, and the antipodal stores of Ultima Thule herself, would excite the cupidity of the purchaser, and remunerate the enterprise of the merchant; and it is interesting to contemplate in the commerce of Sidon and Tyre the prototype of British vigour and speculation.

The citizens of those woe-doomed havens⁴⁴ ministered to the

des siecles anterieurs a la guerre de Troyc, et que sa decouverte a ete faite dans le temps de la grande puissance des Etrusques."

⁴⁴ The prophet Ezekiel was taken captive to Babylon about five hundred and ninety-nine years before the christian era; and it may be supposed that about the same time, or soon after, Nebuchadnezzar commenced his siege of the continental city of Tyre, which siege lasted 13 years. The Tyrian citizens, to avoid the inconveniences of a future siege, retired to the island, and established their city on the waters. The offended pride of Alexander the Great, 270 years after this period, was appeased only by the destruction of this independent and single-handed opponent, which had checked, during seven months, his lust of universal dominion. The city, however, was soon rebuilt; and about 450 years after its destruction by the son of Philip, it was made the metropolis of a district by Hadrian, the fifteenth emperor of Rome. In the conflict of national fanaticisms, she fell in common with the cities of Spain, Africa, and Arabia, of Persia, Palestine, and Syria, under the zeal and scimitar of the disciples of Mahomet, 638 years after the propagation of christianity on her borders. She was again wrested from the grasp of infidels by the devoted fanaticism of the crusaders, under Baldwin II. the phantom king of Jerusalem; and after the holy sepulchre had been again abandoned to the keeping of infidels and Musselmen, was again destroyed and deserted, by the injured and avenged Sultan of Egypt, in 1289. In 1783-4, the philosophic and faithful Volney remarks, "The whole village of Tyre contains only fifty or sixty poor families. The situation, nevertheless, of the once empress of the ocean is favourable to mercantile enterprise, though the commerce of the east has been abstracted from her paths into the far Atlantic." Mr. Buckingham, one of the most recent travellers in Syria, describes it as again rising into comparative importance. "At the present time, the town of Sour (Tyre) contains about eight hundred substantial stone-built dwellings, mostly having courts and various conveniences attached to them, besides other smaller habitations for the poor. There are within the walls one mosque, three christian churches, a bath, and three bazaars; at the lowest computation, it contains from five to eight thousand

splendour of Solomon, the wisest of the chosen kings of Israel, and, establishing factories on the northern gulphs of the Red Sea, they made themselves masters of the dangerous navigation of its sacred shores. The coasts of Arabia, of Persia, of India, and Abyssinia, were tributary to their commercial demands; and transporting the manufactures and productions of those ancient nations across the isthmus of Suez to Rhinowlura, they poured them forth into the lap of admiring Europe. Impelled by restless energy or the abiding desire of wealth, they are said to have issued from the Gulph of Arabia, to have circumnavigated the huge peninsula of Africa, and to have returned under the columns of Hercules into the Mediterranean waters, the adventurous precursors of a remote posterity, who, in the lapse of ages and in the wake of *their* fragile barks, have ravished the riches of the east from the merchants of the Adriatic and Tuscan seas, and accomplished the fulfilment of inscrutable wrath against the earliest benefactors of the human family. They boldly committed themselves to the wild waves, and no less inhospitable savages, of the Euxine; and, daring the empire of Neptune, they stemmed the current of Gades, and unfurled the unwonted sail on the boundless and unknown Atlantic.—Impatient of tried navigations, they explored the harbours of Spain, of Gaul, and of Britain; and, first of men, united the extreme east and west in the social link of mutual interest.

To such a people, pressed by necessity and prompted by expediency, holding an actual and demanding a logical intercourse with the most distant regions of the globe; eager to invent, and holding the premium of invention; enlightened in the arts of man, and despising the despotism of mythologies, we may patiently, and even cheerfully, with probability, and argumentatively, concede the discovery of a phonetic alphabet—a medium of discourse between the distant regions and ages of mankind.

From the people who discovered we turn our attention to the *period* of the discovery of that art which, while it enlarges, embellishes the human mind; and, in communicating and perpetuating inventions, accumulates the conveniences that solace the feeble frame of man.

Writers have more readily agreed as to the inventors than as to the *date* of the invention. It was not, however, till after the establishment of christianity that the question of the date of letters was

agitated with an ardour adequate to the importance of the inquiry. The early fathers took up the subject with a fervour more creditable, perhaps, to their zeal than their discretion, and boldly attributed the knowledge of letters to the divine revelation of Jehovah at Sinai; whilst others, with a laudable anxiety to secure an authentic history, *ab ovo mundi*, referred the invention to Noah, and even to Adam himself.

To guard ourselves against extravagancies, and at the same time to concentrate the attention of our readers upon the nature and manner of our conclusion, we shall be guided by certain canons of inquiry, by whose instrumentality we shall endeavour to draw near to probability. It must, however, be kept in mind that, in the lapse of time, written authorities have been either wholly destroyed,⁴⁵ or sub-

⁴⁵ The destruction of ancient records may be attributed to three general causes. 1st, The physical operation of time; 2nd, The ravages of war; and 3rd, The rancour of religious feuds, which has operated as widely and as permanently as time itself. The first cause requires no explanation. The second is, in so many cases, mixed up with the third, that it is difficult wholly to separate them; and the earliest history we have of the destruction of literary productions is that by the eastern conquerors of Palestine, who, being fire-worshippers, held in detestation and destroyed the books of the Jews, by whom the rites of Molech were forbidden. The Persian kings from Cyrus the Great, in the middle of the sixth century before the christian era, held dominion over Judæa and Palestine, and the west of Asia in general, till the conquest of those countries by Alexander the Great, in the 4th century B.C. and the posterity of his general Seleucus, as the dynasty Seleucidæ, held them in like subjection, with few interruptions, till they fell (B.C. 65) under the yoke of Rome, of which they remained provinces till the Arabian conquest. Antiochus Epiphanes, one of the Seleucidæ (170 years B.C.), with every denunciation of severity, ordered all the books of the Jews to be consigned to the flames. Cambysses, king of Persia (530 B.C.), stung with religious zeal, destroyed the temples and monuments of Egyptian erudition. The learning of Greece suffered under the yoke of the Romans, whose distaste of letters was exemplified in the treatment of Carneades by the elder Cato. The records of the Romans had been previously destroyed by the Gauls. The soldiers of Cæsar destroyed the library of Alexandria (50 years before the christian era) which had been collected under the royal patronage and philosophic munificence of the Ptolemies, a dynasty which had governed Egypt since the conquest of Alexander the Great. In the following seven centuries, the savages of the north and the zealots of Arabia seem to have conspired, and, by the same reasoning, against the existence of an art so essential to the independence and happiness of mankind; and it would be difficult to determine whether the warriors of Odin or the squadrons of Mahomet had wrought the wider desolation on the productions of the human mind. The reply of Omar to his more considerate or less savage lieutenant, Amru Ebn el Ras, embodies the common sentiment of religious fanatics of all ages and countries, against

jected to interpolations and alterations,⁴⁶ from error or intention, which render questionable the seeming highest authorities; and a critical examination of dates⁴⁷ would involve the inquiry in inexplicable doubts, and bury it under an irremovable shroud of darkness.

the existence of useful knowledge. "Those books," said the devout Musselman, "that agree with the Koran, are of no use; and those that do not are pernicious." The libraries of Alexandria were a second time, after an interval of 700 years, consigned to the flames; and the 4000 baths of that vast city were supplied with the literary fuel of 500,000 volumes during the six months subsequent to the fanatical decree of the successor of the *self-styled* Apostle of God. In the beginning of the 13th century of christianity the insensate hosts of the crusaders pillaged the capital of the east, and the statues, the bustes and the bronzes, the paintings and the manuscripts, that had accumulated during ages in the public buildings and libraries of Constantinople, were sacrificed to savage ignorance or religious wrath. The scene was repeated on the capitulation of the cross to the crescent in A.D. 1453; and the zeal of Mahomet II. inflicted a *coup de grace* on the learning of the christians and the Greeks. I am acquainted with two instances of the destruction of letters arising especially out of the third cause, unconnected with the inhuman warfares that disfigure the society of nations; and I lament to connect with the zeal of Christians against Pagans, the mutual intolerance of Platonists and Pythagoreans. I would fain have left in oblivion the more remorseless zeal of Arian and Athanasian, whose adoration of the same deity might have taught reciprocal indulgence; nor have I space to hint at the thousand schisms that disfigure the christian church, each destroying or disguising the literary effusions of the other. Nation against nation, creed against creed, and sect against sect, have waged exterminating wars, destructive, as if conventionally, of the history, the poetry, the philosophy, and the religions of antiquity. Posterity may exult or lament over the destruction of tomes that would have confounded the wisdom of the wise, and withdrawn the uninitiated from the pursuit of modern and useful science.

⁴⁶ The alterations and interpolations of the works of antiquity pass the credence of those who are unacquainted with the subject. To supply an estimate of the havoc of annotators and copyists, it will be sufficient to call to mind the four quarto volumes of various readings, extracted from only 400 Hebrew manuscript bibles, published by De Rossi, of Parma, in the latter end of the last century.—(*Calmet*, art. Bible). This author has not informed us the result of Dr. Kennicot's comparison of 600 Hebrew MM. which, it is to be apprehended, has created some embarrassment. Whole books of scripture have been lost, while those admitted in some countries have been rejected in others. The Samaritans never admitted any books posterior to those of Moses, or the Pentateuch.—*Calmet*.

⁴⁷ In the determination of the date of authors, it might be reasonably expected, *a priori*, that the earliest in each language would be the most fabulous, as well as the most imperfect in style and conception. The pretensions of the Bonzes, the Brahmins, and the hierophants of China, of India, and of Egypt, will lead us to receive with caution ecclesiastical authorities for the antiquities of nations.

We shall, therefore, adopt a more general method of inquiry, and, commencing with the indisputable age of letters in Greece and other countries, shall ascend with caution to the earliest writer of whom probable record remains.

Our inquiry, then, in ascending into the obscurities of time, will be directed, as far as is practicable, by the following assumptions:—1st, That the date of an extant or recorded author will prove the invention of letters by, or prior to, such author. 2nd, That where records of authors cease, letters had but a short, if any, prior existence; and that such records may be supposed to have ceased where the succession or continuity of writers has ceased for many centuries. 3rd, If the first recorded authors of all known nations appear to be posterior to *one* author of one country, the date (and country) of that author will be the date (and country) of the invention of letters.

The rhetoric of Demosthenes, the metaphysics of Plato, the social philosophy of Socrates, the manly narratives of Xenophon and Thucydides, attributing the actions to the passions of men, without the admixture of divine agency; the highly-wrought dramas of Sophocles, of Euripides, and of Æschylus, are sufficient evidence of the existence of phonetic letters during and prior to the fourth and fifth centuries before the age of christianity; and it might appear as sceptical to suppose that such productions were unaided by the contemplation of anterior authors, as that they were addressed to a people unpolished by the prior reception of letters. The simplicity of Herodotus (the most ancient Grecian historian extant, as we ascend nearer to the days of darkness) is characterized by the credulity of those days; his probable histories of humanity are disfigured by his ready admission of mythologies; and a long blank of authentic history lies behind the middle of the fifth century before christianity, which has been filled and embellished by the imagination of bards and legendaries. The works of Acusilaus of Argos, of Hellanicus of Lesbos (who completed a real or imaginary history of the ancient kings of the earth), of Pherecides of Syros, of Dionysius and Hecataeus, both of Miletus, have perished amidst the wreck of time and the flagitious rancour of sectaries, or survive in the questionable form of extracts in posterior authors. The learned and eloquent Dr. Gillies, in denominating these latter historians (the earliest of whom flourished about 520 B.C.)⁴⁸

⁴⁸ It is not, however, to be supposed, because no literary author existed prior to this date, that therefore letters had not antecedently been in use.—The probability is, that, for purposes of utility, they had been some time

“the first prose writers, or rather the first WRITERS,” has quickened our scepticism in the pursuit of remote truths, and left us to conjecture that the sublime flights of Homer and Orpheus are rather collations from, than the creations of, those early associated names. The odes and hymns of the *αοιδοι* (*aoidoi*, or singers) might have circulated through Greece traditionally many centuries (not, indeed, in the literal attire under which they still continue to charm) prior to their collation and arrangement by the master hands that have appropriated them; and the poetic and parallel attempt of Macpherson in an enlightened age will sanction such a hypothesis. But the *niche of time* in which those fathers of song have been placed is anterior to authentic history, and was as much the subject of conjecture to those who arbitrarily assigned them their chronological periods as to the learned of our own times. From Herodotus, who recited his history at the Olympic games, 445 years B.C. (according to the compilers), and from the cyclic poets, all anterior chronologies have been arranged; and some pains have been taken, in the beginning of these remarks, to point out the particular authorities on which our knowledge of ancient dates is founded.

The opinion of Dr. Gillies is startling to those who have fondly rested upon the received chronologists, and the letters of the afflicted Cadmus,⁴⁹ (1400 B.C.) the Orphean lyre,⁵⁰ and the epic of Homer,

adopted, both in private and publicly; first for mercantile transactions, and subsequently for the publication of laws and cosmogonies, &c.

⁴⁹ Cadmus is said to have introduced *letters* into Greece from Phœnicia, 1400 B.C. It is, however, incomprehensible that the *phonetic* letter should have so long existed amongst such a people, nor have awaked the written song of the poet, or inspired the plume of the historian. We are sustained, however, by history in our opinion that a sacred or *hieroglyphic* letter existed in Greece as well as in Egypt at that time. Orpheus, Musæus, Dædalus, Homer, and other eminent Greeks, are said to have learned the sciences of the Egyptians; and Manetho, according to Eusebius, expressly speaks of the doctrines of Hermes on the Seriadic columns as *ερμηνευθεισων μετα του κατακλυσιων εκ τῆς ἱεραῆς διαλεκτῆς ἐν τῇ Ἑλληνικῇ φωνῇ γραμμασιν ἱερογλοφικαῖς*.—“Having been translated, after the flood, out of the sacred dialect, into the Grecian language, in *hieroglyphic* writing.”

⁵⁰ There is no work of Orpheus, or of Musæus, or of Linus, extant, and Vossius considers them “*non fuisse*,” not to have existed. The fabulous presumption of Thamyras and Marsyas, of Dædalus and Melampus, consigns them to the regions of the gods, as “lords of the manor” of all that is imaginary (as Bishop Cumberland pleasantly concludes) and of all that is absurd and improbable. Our opinion of Homer’s works may be collected from the text. His name is known to all, but belongs to none; and if its proprietor existed he never laid claim to a period in time or a place on earth.

seem as a dream of infancy, with which we are still willing to amuse our second boyhood. The histories, however, of Egyptian and Chaldean, of Etruscan and Roman, of Carthaginian, Samaritan, and Phœnician, phonetic letters, are in probable keeping with the supposition, which, if it be impossible to prove it, affords at least a plausible solution of the question in hand.

1st, The policy of the Egyptian hierarchy had early taught the people to hold all seafaring persons and shepherds (the wandering and commercial Arabs) as impious and profane;⁵¹ and the same policy may have consistently operated in the exclusion of the phonetic letter from that oppressed race of men. The Bonzes of China and the Brahmins of India⁵² have, by like means, held an absolutism over the masses of their respective countries; and it was not till the middle of the third century before christianity that the first Egyptian writer, Manetho, a priest of the temple of Hierapolis, edited, in the phonetic alphabet and in the Greek language, an indigestible mass of mythologies, alike indicative of his own and his people's ignorance of all useful learning. Mr. Wise (in his *Inquiry*, &c.) is of opinion that that people (the Egyptians) was unacquainted with the phonetic letter till the introduction of the coptic under the Macedonian dynasty

⁵¹ Diodorus Siculus, lib. 1, and GENESIS xlvi, 34, "for every shepherd is an abomination unto the Egyptians." Manetho (according to Eusebius, a father of the christian church) mentions a very ancient conquest of Egypt by the shepherd kings of Arabia, who cruelly entreated the Egyptians, and, after having ruled over the country 259 years, were induced to emigrate; and hence, perhaps, as well as from the apprehension of foreign communication, might arise that prejudice against the shepherds which, from the time of Joseph, continues (probably from like causes) to this day to prevail in Egypt.—*Neibuhr and Burckhardt*.

⁵² The Brahmins not only adopted a *peculiar letter*, but a *separate language*—an ingenious but base policy that was adopted by the christian priests of the middle ages and the catholic church, whence has been retained, by some of our ecclesiastics, their admiration of *dead languages*. The Egyptian priests had two kinds of dogmas, the one vulgar, *δημῶδες*, and the other *secret* or *unspeakable*, ἀπορρητον, not to be divulged or made vulgar; and as they had two kinds of doctrine, so had they also two sorts of letters; Διφασίσι δὲ γράμμασι χρεῶνται, καὶ τὰ μὲν αὐτῶν ἱερά, τὰ δὲ δημοτικά καλεῖται.—"They," speaking of the Egyptian priests, "use two kinds of letters, one sort called sacred, the other, the people's."—*Herodotus in Euterpe*. Diodorus attests the same more fully:—Παιδεύουσι δὲ τοὺς υἱοὺς οἱ μὲν ἱερεῖς γράμματα διττά, τὰ μὲν ἱερά καλῶμενα, καὶ τὰ κοινότεραν ἐχόντα τὴν μαθησίν.—"The priests teach their sons two kinds of letters, one sort sacred, the other for the use of the vulgar doctrines." The present equal progress of knowledge and morals shows us that the concealment of truth is a dangerous as it is a base and unprofitable policy.

of the Ptolemies, or of Psammeticus or Amasis Egyptian or *Perso-Egyptian* princes. It seems, however, improbable that a character so nearly resembling the Grecian should have been adopted by native princes of Egypt; and that very similarity is a strong presumption that it was introduced by the Ptolemies, whose Grecian partialities may be supposed to have descended with the power they enjoyed from the Macedonian hero; and the introduction of a phonetic letter into Egypt may be dated in the end of the third or beginning of the fourth century before the christian æra.

2nd, The dissemination of letters amongst a people who could patiently witness or clamorously demand the sacrifice to their national idol of three learned Jews, may be doubted;⁵³ and history is unacquainted with a literary production⁵⁴ of the Chaldees before the Greek works of Berosus, a priest of the temple of Belus at Babylon,

⁵³ It must, however, be confessed that a history of the unhappy men who have died or suffered, since the invention of letters, in attestation of their religious convictions, from the christian to the atheist, through the thousand creeds and delusions that have bewildered mankind, would occupy as many tomes as perished in the two literary desolations of Alexandria, and ought to start the reason and excite the humanity of civilized legislators.

⁵⁴ I am not ignorant of the astronomical observations of the Babylonians, said to have been sent by Calisthenes (time of Alexander) to Greece, and which embrace a period of 1900 years—they were preserved as *monuments*; or of the passage in Pliny which states that Epigenes (whose date is unknown) knew of Babylonian observations of 720 years prior to his time, “*occulibus lateritiis inscriptas*;” and that Berosus was acquainted with some of 488 years before his time. These passages at least do not corroborate each other; and the *burnt tiles* and *monuments* on which these observations were said to have been kept, rather than otherwise *negative* the existence of a phonetic alphabet in those days, as does most strongly the fact that the Persian Daric, the *first* coin issued in Persia, was without a phonetic letter, though struck by Darius Hystaspes so late as about 480 B.C. So great a king issuing the first coin in the east stamped with his head! Is it not to be supposed he would have inscribed his name on it? The concurrent testimony of coins is most valuable to our conclusion. The Assyrians, Medes, Babylonians, and Egyptians, had no coins. In the mouths of the mummies are *thin, un-stamped*, and round pieces of gold, to pay Charon’s fare. The most ancient Greek coins have no letters on them; those of later date have ΑΙΓΙ and ΑΙΓΕΙΩΝ on them, the latter of which are very scarce, and, Mr. Pinkerton thinks, may belong to Ægium in Achæa; but the former, he thinks, were from the mint of Ægina, “perhaps the most ancient in Greece,” and of about the date 600 B.C. To ascend higher, the Lydians invented coinage, but the Lydian coins have *no legends*. Indian and Chinese coins are of very recent date. The admission of a Jewish shekel into a cabinet would disgrace it, says the same author.

in the middle of the third century before the christian epoch. The policy, perhaps the fear of the priest, might forbid the use of the Chaldean character; but our Holy Scriptures are said⁵⁵ to have been written in that alphabet, by the learned Esdras,⁵⁶ as early as the latter end of the fifth or beginning of the sixth century before the christian æra; and no distrust can attach to an author who is thought, by many of the early and most learned teachers of christianity, to have restored the whole⁵⁷ of the Scriptures by the immediate inspiration of Jehovah. Of the Chaldæan literature, then, the earliest record is about 500 years before Christ.

3rd, Of Etruscan literature we have few memorials, save the Eubugian Tables, which are referred by father Gori, their sensitive patron, to the second century before the Trojan war, the date and even existence of which itself must ever remain an open question; but we may not legitimately retire from the field of acknowledged history to hide ourselves in the darkness of monumental fiction or literal criticism, alike subject to error and open to imposture. The Etruscan character resembles, and is in all probability posterior to, the ancient Greek, the date of which must be referred to the sixth century before Christ.

4th, The establishment of the Roman name in the eighth century before the christian age, is not embellished by the early adoption of letters;⁵⁸ and arms, for many centuries, occupied the attention of that savage people, to the exclusion of learning. The first Roman historian, Fabius Pictor (his works have perished, and been substituted by an acknowledged forgery), is said to have flourished 225 B.C.

⁵⁵ By several eminent fathers of the christian church, Irenæus, Tertullian, Clemens, Alexandrinus, Basil, and others.—*Calmet*, art. Esdras.

⁵⁶ "He wrote out the *whole* in the Chaldee character."—*Ibid*.

⁵⁷ "Some of the ancient fathers" (of the christian church) says Dr. Prideaux, "held that *all* the Scriptures were lost and destroyed in the Babylonish captivity, and that Esdras restored them *all again* by divine revelation."—*Calmet*, art. Esdras. About this time Pythagoras taught his disciples at Crotona, in Italy, in the *hieroglyphic character* of the Egyptians and Chaldæans: he died 497 B.C.—See Lempriere's *Classical Dictionary*.

⁵⁸ 454 years B.C. it was determined by the senate of Rome, and by the body of the people, to establish written laws. Antecedent to this time, the edicts of the kings seem to have been received as legal authorities, and written laws were either rare or did not exist, as the royal will was commonly proclaimed by a herald. Three ambassadors were sent to Athens, to copy the laws of Solon; and hence were compiled the "*Leges duodecim Tabularum*," or laws of the twelve tables, which ever after remained the foundation of Roman jurisprudence.

5th, Of Carthaginian literature⁵⁹ we have little more than the tradition; the most distinguished colony of Tyre had wellnigh lost, in her struggle with palmy Rome, the possession of a name amongst posterity.

6th, Much idle controversy has arisen out of the question as to the dates and authenticity of the Pentateuch (or five books ascribed to Moses) and the posterior books of Holy Writ. That the whole of them could not have been written by an individual contemporary with the long series of ages of which they form the history, is an axiom disdaining illustration. Be their dates what they may, either they proceed from the inspiration of Jehovah, or are not his word: and the man of devout conformity will as readily bow down before the divine effusions of Esdras, or of the priest of Eserhaddon, as of Adam, or of Noah, of Shem, of Abraham, or of Moses. Their only authenticity is their divine process; and if the heavenly afflatus were extinct after the death of Moses, all posterior scriptures must be merely human; but if it were extended over the age of the prophets, then is their authenticity as incontrovertible communicated by Esdras, or the priest of Eserhaddon, as by the earlier prophets of Eloim.—The opinion of Le Clerc⁶⁰ is not at variance with the divine inspiration of the sacred books, and is in conformity with the probable chronology and authentic history of mankind.

Of Samaritan literature, then, there remains only⁶¹ the Penta-

⁵⁹ As much light is thrown upon our subject by ancient coins, so does the genealogy of alphabets—(see Astle on the *Origin and Progress of Writing*)—supply much curious induction. He allows the Phœnician alphabet to be the first. *From the Phœnician are derived*—1st, Ancient Hebrew or Samaritan: (*i. e.* Phœnician or Philistine, see notes ⁶² and ⁶³).—2nd, Chaldaic: a mere dialect of the Phœnician, in which the Hebrew Bible is written (see note ⁶⁰).—3rd, Bastulian, or Spanish Phœnician: propagated at Cadiz (Gades), a colony of Phœnicians in Spain.—4th, Punic, or Carthaginian and Sicilian: propagated at Utica and Carthage, Phœnician colonies, and in Sicily, where the Phœnicians had numerous colonies. *Ἰκουν δὲ καὶ Φοίνικες περιπαῶσαν μὲν τὴν Σικελίαν.* The Phœnicians dwelt round all Sicily.—*Thucydides*, vi. 2.—5th, Pelasgian, *i. e.* speciatim of Greece and Magna Grecia: Etruscan, Eugubian or Umbrian, Ocean or Volcian, Samnic or Samnite, Ionic Greek, written from the *left* to the *right*.

⁶⁰ *Cabinet*, art. Samaritans.

⁶¹ The cabalistical jargon of the Jews has been committed to paper in modern times. Their learned rabbin, Moses Maimonides of Cordova, 1132 A.D. states that “among the Hebrews were many mysteries formerly, but that they have all perished.” “Nosti enim Talmud ipsum inter nos receptum, olim non fuisse incertum librum deigestum, propter rationem istam, que tum *passim* obtinebat in gente nostrâ :—VERBA QUÆ DIXI TIBI ORE,

teuch, which is in the Phœnician⁶² character, and, as is supposed by Le Clerc, was written by the priest of Eserhaddon⁶³ about 670 years before the age of christianity.

7th, The opinion of Dr. Gillies applies cogently to Grecian literature; but Greek and Roman⁶⁴ testimonies assign the invention of letters to the people of Phœnicia; and those testimonies have been admitted by many learned antiquaries of all ages. The literature of the Phœnicians is handed down to us, in the form of quotation,⁶⁵ by the two fathers of the christian church, Eusebius and Theodoret; and the works of Sanchoniatho of Berytus, a small town to the north of Sidon and Tyre, on the coast of Phœnicia, had perished amid the wreck of time, had they not exposed to christian contempt the erring imbecility of a heathen and an atheist; whose date may be placed, in reference to pagan and sacred history, about the middle⁶⁶ or end of

NON LICET TIBI SCRIPTO DIVULGARE."—"For you know that the Talmud itself received among us, was not *formerly* digested into a definite book, on account of that reason, which at *that* time obtained *universally* in our nation, namely, it is not lawful for thee to divulge in writing the words which I have spoken to thee with my mouth." The writings of Sanchoniatho contained a history of the Jews similar to that of the Holy Scriptures, according to the christian fathers Eusebius and Theodoret.

⁶² "The Samaritans having received the Pentateuch (or the five books of Moses) from the priests sent by Eserhaddon, have preserved it to this day in the same language and character as it was then written in, *i. e.* the old Hebrew or Phœnician, which we call the Samaritan, to distinguish it from the modern Hebrew" (or Chaldee).—*Calmet*, art. Samaritans.

⁶³ "He," Le Clerc, "therefore, imagines that the Pentateuch was composed by the priest sent to the Cuthites or Samaritans."—*Ibid.* This priest is mentioned in **KINGS** ii. 28. "Then one of the priests whom they had carried away came and dwelt in Bethel, and taught them how they should fear the Lord." It is, however, somewhat enigmatical that the Samaritan Pentateuch was unknown in Europe till the sixteenth century.—Read *Calmet*, Samaritan.

⁶⁴ Herodotus, 5, 58; Lucan, Pliny, Curtius.

⁶⁵ The arguments in favour of the authenticity of these quotations are well sustained by the northern encyclopædists, in the article "Sanchoniatho."

⁶⁶ The date of Sanchoniatho has been much disputed. By some it has been attributed to the time of Semiramis, 1900 years before the christian era. Sanchoniatho, however, refers to the building of Tyre as an ancient event.—Now the building of Tyre has been attributed to a time posterior to Gideon, about 1250 B.C. "All this," say the authors of the *Ency. Brit.* "may be true, but, if so, it amounts to a demonstration that the antiquity of Sanchoniatho is not so high by many ages as that which is claimed for him by Philo and Porphyry, though he may still be more ancient (as, we think, Vossius

the eighth century before christianity, and prior to whom history affords no credible record of a *phonetic* alphabet.

It appears, then, that the mercantile coast of Phœnicia was the country in which a phonetic alphabet was discovered, and that Sanchoniatho was the first writer in it, if not the inventor⁶⁷ of it. That not exceeding one century after its discovery, the Samaritan priest of Eserhaddon wrote (about 670 B.C.) in the Samaritan, old Hebrew, or Phœnician character (for they were the same), by the inspiration of Jehovah, the sacred compilations of the *Pentateuch*, for the use of the Samaritan Cuthites, who, bordering on the Phœnicians, used the same language. That about 150 years posterior to that date, Esdras, by divine inspiration, transcribed or composed the whole body of the sacred compilations in the Chaldæan⁶⁸ character, in which they now stand, for the accommodation of the Hebrew priests, who, after the Babylonish captivity, understood only the Chaldæan language.

From the commercial necessities of the Phœnicians, the communication to the nations of the Mediterranean was coeval with the invention of the phonetic letter; and, after the lapse of a few ages of man, the people of Greece would avail themselves of an art that gave a visible existence to the raptures of the poet, the knowledge of the historian, and the demonstrations of the mathematician.

Such appears to be the probable date and origin of the phonetic alphabet, founded upon testimonies which may be, on a review of them, divided into two kinds—1st, Positive; and 2nd, Negative.

Of the former kind may be considered, 1st, The undisputed exist-

has proved him to be) than any other profane historian whose writings have come down to us, either entire or in fragments.”

⁶⁷ Each discovery depending on abstract reasoning has been the work of an individual mind, and, although subject to improvement in the progress of human reasoning, has, in some degree, answered the intention of the inventor.

⁶⁸ *Calmet*, art. Esdras. We are bound by historical analogy to suppose that the language spoken by the Israelites, at the period of the exodus or leaving Egypt, where they had sojourned upwards of two hundred years, was that of the Egyptians. The above notes inform us, and historic analogy sustains them, that after their settlement in the promised land it was Phœnician or Philistine, for the epithets apply to the same people; and that under the Babylonish empire it was Chaldee. Profane history assures us that under the Macedonian dynasties it was Greek, and so remained till the destruction of Jerusalem and the posterior extinction of the lower empire.—The language of modern Palestine is that of Mahomet; and I am at a loss to discover a language which may be considered as belonging exclusively to the descendants of Abraham.

ence of authors in a phonetic alphabet to the time of Pherecides in Greece, and of Sanchoniatho⁶⁹ in Phœnicia. 2nd, The almost simultaneous and undisputed communication of that alphabet, soon after the time herein assumed for Sanchoniatho, over all the nations west of the Euphrates. 3rd, The actual existence of coins bearing that alphabetic legend as high as 600 years B.C.

Of the latter or negative kind may be considered, 1st, There being no undisputed record of any author in the *phonetic* alphabet antecedent to Sanchoniatho. 2nd, Our total ignorance of all human events antecedent to the herein assumed time of Sanchoniatho (who wrote a history of the Jews similar to that in Holy Writ, but which is generally believed to have perished), except those handed down to us by the revelation of Jehovah himself. 3rd, The existence of coins prior to and some time after 600 B.C. which bear impressions, but no legends; as the Persian Daric and the Lydian coins. 4th, The undisputed existence and use of the hieroglyphic writing prior to, and for a short time after, the date assumed for Sanchoniatho.—(See note ⁵⁴).

⁶⁹ Scaliger in the 16th, Vossius, Bochart, Cumberland, Dodwell, Stillingfleet, in the 17th, and Warburton in the 18th centuries, were the first to contest the existence of this author, and the authority of his extracts as given in Eusebius. The discussion ran to many volumes, as might have happened on the best accredited authors of antiquity. The dispute was fanned up by somewhat of religious zeal; and it is easier to see clear *without*, than *by*, the light extricated in the conflict. The European, if his attention be diverted from his own to the distant shores of Palestine, is dazzled by the coruscations of heavenly light that are shed over them; nor deigns his meed of applause, or his humbler tribute of gratitude, to the discoverer of the Phonetic Alphabet.

(To be continued).

FURTHER THOUGHTS ON EDUCATION.

“A LITTLE learning is a dangerous thing,” is often argued by those who are adverse to the wide extent of education; and perhaps there is no adage, founded on fact as this is, which has been more frequently perverted and misunderstood. Many construe it, that as danger is to be apprehended from the possession of a little learning, so would security necessarily be maintained by the continuance of ignorance. This cannot be. Man is endowed with reasoning and reflecting faculties, which render him a free agent, and place him above the brute. There are innumerable objects on which these faculties can be exercised; and the power of exercising them is the highest privilege which he inherits. The goal to which all human exertion aspires is perfection; and though this may not be obtained in all its purity, every approach to it is answering in a great degree one end of our creation. Therefore is it that to extend wisdom is to increase happiness; because extension of knowledge necessarily furnishes greater opportunities of employing the talents bestowed upon us, while to sanction ignorance is at once to withhold a universal blessing, and to oppose the intention of the Creator as evinced in the mental constitution of man.

“A little learning is a dangerous thing” might be far more profitably construed by being supposed to imply the necessity of a constant progression in knowledge, thus converting the bane into the antidote. Knowledge, it may be said, is only dangerous when an equal degree of it is attempted to be indiscriminately bestowed, without regard to the respective condition of the receivers. In this case, it too frequently happens that the feelings of self-esteem and vanity are unduly called into action, whereby the legitimate progress of learning is crippled and retarded. But as the abuse of a thing is no argument against its use, so the occasional evil which may have resulted from misapplied education is no argument against the advantage of freely and universally disseminating all kinds of useful knowledge; ever keeping in view the different constitutions of different minds, and adapting the instructions to the peculiar ability of each, at the same time continuing to prosecute the improvement to the utmost extent of which the mental powers may be found capable. The ultimate constitution of the mind, together with the mode in which it acts in creating thought and directing action, will most probably ever escape human research. Its mysterious power

of impulsion can be only estimated by the effects which it produces. In infancy, we find the mind's manifestations few and feeble ; in mature life, its full activity is developed ; while in old age it again loses vigour, and finally appears to be exhausted. May not the indefinable, unappreciable principle of mind be the same in all these cases ; and may not the difference of exhibition proceed from the increasing and decreasing efficiency of the corporeal organs to obey its promptings ? Death can obscure, but it cannot extinguish, the light of immortality ; and though the medium may be removed through which the radiations of mind were made apparent, still the lamp will continue to burn on, drawing its food from that eternal source by which it was first created.

At what period of life should education commence, and what should be its duration, are questions often asked ; and they can be best answered by enquiring what education is ? Education may be said to consist in a certain discipline calculated to exercise an influence on the action and the direction of the various mental powers, as they are gradually unfolded through all their progressive stages. Now, as some of the mental manifestations display themselves from the earliest dawn of perception, and increase in number and intensity as the meridian of intellectual capacity approaches, it is, therefore, fair to argue that education should commence with the first indications of mental consciousness, and always keep pace with the development of greater capability of intelligence. The faculties which appear first associated with human life are the mere animal propensities of hunger and thirst. The infant applies instinctively, or, as it is termed, naturally, to that source from whence it can draw the sustenance necessary to its physical existence. The perception of external objects next shows itself, but without consciousness of their relative or intrinsic properties. Indications of passion are soon exhibited, and love and anger alternately elicited. By degrees reflection becomes incorporated with impulse, thereby giving the ability to infer conclusions from the past, and to anticipate results for the future. Perception and reflection, in union with imagination, or the faculty of conceiving original ideas, form the materials with which the intellectual fabric is constructed, while the religious and moral sentiments, which in due time are manifested, and exercise so powerful a control over the destinies of man, constitute the cement which binds the whole together, and enables the pile to be reared to a height apparently immeasurable. Now it appears that the various mental powers are gradually and progressively developed, and are not simultaneously exhibited ; and as education

is allowed to be a most important agent in stimulating, or controuling, or modifying these powers, it may be justly inferred that its application is regulated to each faculty as it is brought into action by the perfecting of the mental economy.

Knowledge is only gained by littles ; and it is by aggregating these littles that great wisdom is ultimately attained. At that period of life when the mind is chiefly occupied by the animal appetites and instincts, namely, in early childhood, constant care should be taken to restrain their exuberance and regulate their exercise. Education should commence as soon as consciousness is apparent, and the earliest emotions tenderly nurtured and directed ; for if, by early indulgence or neglect, the natural activity of the passions is stimulated, it will produce such an effect on the character in after life, however its violence may be modified by circumstances, as will sully the brightest intellect, and bring bitter disappointment and misery on the most exalted genius. A bias may be given to the disposition and character at a far earlier age than is frequently supposed, and the future happiness or misery of the man through life may greatly depend on the vigilant care of the mother in studying the infant manifestations of mental action. The young branch may be bent at the will of the trainer, and will grow obedient to his hand ; but the fully matured stem, when the restraining band is removed from it, quickly resumes its native position. So it is with the human mind, as far as the animal propensities and moral sentiments are concerned. In childhood these faculties may be directed in channels where they will afterwards continue to flow ; but in age they must be coerced by the force of circumstances, to make them deviate from their established course, and, that coercion removed, they at once obey their original impulse. As perception and reflection are developed, food should be provided them with a judicious and at the same time a most liberal hand ; the powers of the mind are best called forth by constantly employing the instrument through which their workings are made palpable. Much has been frequently urged against the absurdity or impolicy, as it is termed, of endeavouring to teach children a mass of knowledge which their comprehension cannot grasp ; and it must be allowed that this crowding on the mind mere mechanical learning may be carried too far : at the same time, however ingeniously they may point out the propriety of waiting until the intellectual faculties are developed by age, before attempting to call them into action, universal practice declares that early and regular study are the means best calculated to call forth these faculties, and to promote their most power-

ful exercise. System and order in arrangement of ideas are indispensably necessary to the attainment of excellence in any science. Now the habit of application induced by early routine study is, in this way, most beneficial; for if the knowledge then acquired be found in after life distasteful or unnecessary, the concentrative power of the mind, having been once stimulated, is readily exerted upon other objects, and forms, as it were, a fulcrum on which the intellectual lever may rest, and by which it may be enabled to accomplish its highest imaginings. Education has its empirics as well as medicine and politics; and there are found persons who both advocate and practice a system, as they term it, of free mental action, which they make to consist in allowing a child to exercise his own unbiassed inclination, not only in the selection of objects for study, but also as to the mode and time for gaining information. The arguments which these blind leaders of the blind use in favour of their plan is, that by putting aside all the trammels of previous opinion and prejudice the mind is thrown on its own resources, and thus is originality of idea promoted. They maintain that when a child feels the necessity of knowledge he will quickly acquire it, and that the reflective faculties can best educate themselves. A very short examination will prove that these conclusions are erroneous. In man, judgment is the produce of reflection directed by reason, and based upon a connected chain of inductions, which chain must have certain points or data on which to rest; for without these, right and wrong would be mere arbitrary terms. Now, if these data are not furnished from external sources, the mind will create them for itself, and thereby too frequently assume false positions, and will always exaggerate even correct premises. Experience of the past affords the best material from which to derive these steady points for the chain of reflection; for, on ascertaining the consequences which have generally ensued upon certain conditions, we are enabled fairly to infer the present results that will accrue from similar circumstances.

The wise in all ages have borne testimony to the advantages arising from early and regular instruction. "Train up a child in the way he should go, and when he is old he will not depart from it," is a maxim which, though not always borne out in practice, is perfectly true in theory. The impressions of childhood are rarely, if ever, effaced; and the pursuits in that period of life are frequently found colouring the occupations of riper years. Individuals educated upon the principle of free mental action—that is to say, educated in direct accordance with their own inclinations—frequently are found

to possess considerable talent, as it is termed, particularly in the perceptive powers; but their reasoning faculties are warped and perverted; the conclusions which they draw are often ingeniously built, and appear fair and plausible; but, as the premises rest on error, we can, by removing the foundation-stone, at once overturn the whole inductive structure. Submit every thing to reason, and let that be the test of truth or falsehood, say those who are ignorantly bigoted in their own powers of judging, forgetting that reason itself requires culture and instruction in order to develop its legitimate action, and is just as liable to be improperly stimulated as any other of the mental faculties. Besides, the powers of reasoning are greater or less in different individuals, and if these powers are made the universal arbiters, right and wrong become the creatures of vacillating opinion, instead of the offspring of fixed and immutable principles. The undue activity of self-esteem, arising from its early and constant exercise, in those individuals who have been permitted to obey only the impulses of their own imaginings, is shown in after-life by rendering such individuals superficial and self-sufficient, dogmatic and intolerant. They are fond of advancing what they consider to be impregnable positions, and maintain their opinions with all the tenacity and confident importance which usually accompany overweening vanity. Superlative wisdom is generally arrogated by these self-deluding philosophers; and at the same time a kind of philanthropic contempt is entertained for all others less self-enlightened than themselves. All this arises from the circumstances of the reasoning powers being allowed to form their own standard of truth and error.

Notwithstanding the frequent reference to the march of intellect, as it is termed, in the present day, and the triumphant manner in which the increasing wisdom of the age is spoken of, it may be fairly questioned whether the human mind can be proved to possess any greater capabilities than it did four thousand years since. It is true that many discoveries in art have been made during the last two or three centuries, whereby a wider field has been afforded for the range of mental exercise; but it does not follow that the finite extent of man's understanding, or the primitive powers of his comprehension, have been increased. If we take a retrospective view through the past ages of the world, we shall find that moral and intellectual perceptions have always existed correlatively, and have produced much the same effect through all times. The wisdom of the early Egyptians; the acquaintance with various arts by the Greeks, as evinced in their letters, their architecture and sculpture:

the knowledge of the heavenly bodies and the celestial machinery, by the Chaldee; the familiarity with the healing properties of many a plant and herb, by the Hebrews; the skill of the Tyrian artificer; the enterprise of the Phœnician mariner; the geometry of Euclid; the mechanical skill of Archimedes; together with the vast works of art which commemorate the power and resources of the Roman empire, all bear witness to the great activity of the intellectual faculties, and to the influence they exerted, in remote days. Again, the moral precepts inculcated by the sages of Greece, with the codes of laws compiled by her legislators; the uncompromising virtue advocated in the early commonwealth of Rome; and the struggles against the inroads of vice and ignorance made by some of her poets and historians, during her transition to the imperial despotism; the ethics of Confucius; and even the purer parts of the Persian and Hindoo mythology, all testify of the passions and feelings which then influenced society, and of the necessity which was then acknowledged of endeavouring to control those passions by other than physical force. The subversion of all order, the utter neglect of every civilizing science, during the long reign of rapine and violence which succeeded the general irruption of the northern barbarians, all but annihilated letters, and effectually checked, for many ages, the advance of intellectual improvement. It is probable, indeed, that but for the influence which religion is found to possess over the human mind, that little or nothing would have been preserved in connection with the records and traditions of former days. The faculty of veneration taught the rude savage to respect the ordinances, and even the ministers, of religion. Superstitious dread frequently withheld the desecrating hand; and the ruthless destroyer, who scorned alike fear and mercy, was often found shrinking beneath the terrors of supposed supernatural agency. Thus the cloistered cell, the cave of the anchorite, the wandering pilgrim, and even the deluded fanatic, became the repositories of the wisdom and the experience of past years. When at length the clouds of ignorance were dispersed, and the light of knowledge again dawned upon the world, many a dormant seed began to germinate, spreading wide its roots through the heretofore barren soil, and enriching the intellectual garden with many a bright blossom. Science was revived. Knowledge asserted its ascendancy. The arts prospered. Social intercourse, and the reciprocal dependance of communities on each other, were promoted. The deformity, the empty pageant, and the hypocritical austerities of religion were exposed. Its ameliorating influence was given free scope for exercise. Civilization advanced with rapid strides. By

the aid of printing, the wisdom of by-gone years was permanently recorded ; and the possibility of another intellectual chaos for ever prevented. Yet mankind are still unchanged. The same propensities which prompted, the same intellect which directed, and the same sentiments which controlled their actions, in the remotest ages, are still found exercising the same powerful sway. And it is possible that much which has been discovered and exhibited in science, during modern days, was not altogether unknown in ages far distant.

Knowledge, upon many subjects, perhaps, is more frequently revived than newly created. Now, if we admit that the human mind is, and ever has been, susceptible of the same impressions and actions, we shall obtain most important data on which to found rules for moral and intellectual education. A careful mariner, if about to traverse an uncertain and little-frequented ocean, would make himself thoroughly acquainted with the charts and observations of those navigators who had preceded him ; and he would endeavour to profit by their experience. In like manner, by carefully examining the opinions of the wise and worthy amongst the by-gones, and by accurately tracing the chain of cause and effect through the social system, we are enabled to collect from the past such materials as may serve to mark out the most advantageous course for the future ; and though occasional shoals and cross currents may appear where not expected, still many a sunken rock will be clearly defined, and many a smooth deep channel unerringly pointed out. In taking this retrospective view, we shall find that religion has invariably exercised a most powerful controul over the words and deeds of men. Whether we regard this sentiment as exhibited in the mysterious allegories of the Egyptian ritual, in the deified mortality of Greece and Rome, or in the followers of Zoroaster, the victims of Bramah, in the wholesale godhead of China, the innumerable varieties of pagan idolatry, or even in the respect once paid to the beautiful, simple, and spiritual magnificence of the Jewish dispensation ; if we regard it in all these, we can every where trace the all-potent action of the faculty of veneration. A principle so universal and so powerful must necessarily, if properly directed, become the most important agent in civilizing man, and in ameliorating his mental condition. Now there is no system of religion which has ever been promulgated, since the foundation of the world, which so completely and effectually associates and identifies the obligation to God and man, as does the fabric of the Christian dispensation. No morality is placed on so sure a base as the Christian morality ; for it rests on

the expressed authority of the Creator ; its theory is totally divested of all ambiguous fable, and encourages the loftiest aspirations ; whilst its pure practice necessarily involves every virtue, and condemns every vice. What a mighty means is here presented, by which to extend and exalt the powers of the human mind, and thus to promote the united advance of wisdom and happiness ! Beneath the outspread dome of this heavenly temple we may yet see consummated that glorious declaration of the prophet, that "knowledge should cover the whole earth as the waters cover the seas."

The faculty which prompts a sentiment of religion is, doubtless, implanted in every mind, though its legitimate direction may be governed by peculiar agencies ; but the innate impulse must exist ; the capability of specific action must be positive, or the responsibility of man cannot be comprehended. In mental education, the development of the faculty of religion ought to occupy the first care ; for it not only materially influences our present condition, but it also affects the destiny of our immortality. At the same time, it should be remembered that there are other faculties, both moral and intellectual, which have been given to us by the Creator for a definite purpose. Not one of these must be deemed unimportant. The exercise and cultivation of the sentiment of religion, to the entire neglect of the other mental powers, is not answering the end of our creation. The glory of the Deity is manifested in the beauty and order and the infinity of his works, as well as in the wonder of his revelation ; and the treasures contained in the storehouse of nature cannot be unfolded, unless the various powers of the mind are brought into action. The individual who professes to hold science to be of no value, and intellect but a vain display, is totally unable to comprehend the nature of man, and utterly incapable of estimating the wisdom and mercy of God.

E. M.

AN HISTORICAL SKETCH OF FRENCH
LITERATURE.

II.—THE TROUBADOURS, AND THE RISE OF CHIVALRY.

“ But I will make another tongue arise,
 _____ in which exprest
 The hero's ardour, or the lover's sighs,
 Shall find alike such sounds for every theme
 That every word, as brilliant as thy skies,
 Shall realize a poet's proudest dream,
 And make thee Europe's nightingale of song.”

Prophecy of Dante.

OF all the languages of Europe formed from the corruption of the Latin, the Provençal was undoubtedly the first in which memory attempted to preserve the works of the imagination; and the Troubadour's was unquestionably the first school of poetry which arose after the extinction of the Roman.

Lineal descendants of the Bard and the Scald, the Troubadours were equally well received in the castles of the great, and the court of the monarch and the hall of the baron were ever open to them. Dispersed through most of the courts of Europe, they created a love for their compositions, and gave an originality and a celebrity to their language equalled only by that which the best modern productions have given to our own. Thousands of poets—men of all ranks, from the monarch to the boor—flourished almost contemporaneously in this new language; and while it gained riches and respect for the obscure, it was considered both an ornament and an honour to the great. The first Troubadour who obtained any high distinction for his poetic talents was William IX. Count of Poitou and Duke of Aquitaine. This poet was born in 1071, and died in 1127; and in these, the palmier days of chivalry, emperors, kings, princes, and nobles, enrolled themselves as Troubadours, and practised “*El Gai Saber*,” the Gay Sciences, as their poetry was termed. The Empe-

ror Barbarossa, though generally represented merely as the bloody conqueror and scourge of Italy, presents one of the earliest examples of that regard for the prosperity of literature which reflects so much honour on sovereigns, and contributes so essentially to their own immortality. As he was king of Arles, on which Provence is dependent, his court resounded with the wild notes of the Troubadours; and we know that he himself was no mean proficient in the fascinating art. The romantic, though doubtless true, history of the imprisonment of our own Richard I. (himself a Troubadour) in the *Tour Ténébreuse*, is too well known to need repetition here. Unfortunately we do not possess the *tenzon* which delivered the King of England from his captivity; we have, however, a *sirvente** which was composed by him in prison after fifteen months captivity. The spirit of calm dejectedness and elevated melancholy which pervades the whole of this poetical effusion of the lion-hearted king, renders it one of the precious monuments of this most interesting period. The success of a few inspired the rest with hope, and their united exertions impelled the Troubadours to perfection with an astonishing rapidity. Their name, their honours, and their reputation, extended far and wide; and the Provençal, far outstripping every rival, seemed at once to assume the place of the now neglected Latin. At once, however, the voice of the Troubadours was silent; and, after a brief, though brilliant, existence of three centuries, the Provençal was no more; and its eloquent and melodious productions, which erewhile formed the solace and delight of the fair, the brave, and the gay, were now cast aside, and ranked amongst those of the dead languages.

* The insertion of the two first stanzas of this most beautiful poem, with the translation by Burney (*History of Music*, vol. ii. pp. 238-39), will, it is trusted, be acceptable to all classes of readers; and we only regret that want of space prevents our giving the whole of this most interesting production.

Ja nus hom pris non dira sa razon
Adrechement se com hom dolens non,
Ma per conort pot il faire causon
Prou ai d'amis, mas pou.e son li don.
Outa i auron se por ma reenzon
Soi fuit dos yver pris.

Or sachoo ben mi home ni baron
Engles, Norman, Pettaven, et Guaseon,
Que ge n'avoie si povre compaignon
Que laissasses por aver en preison
Ge nil di pas, por nulla retraison
Mas anquor soige pris.

No wretched captive of his prison speaks,
Unless with pain and bitterness of soul;
Yet consolation from the muse he seeks,
Whose voice alone misfortune cau control.
Where now is each ally, each baron, friend,
Whose face I ne'er beheld without a smile?
Will none, bis sovereign to redeem, expend
The smallest portion of his treasures vile?

Though none may blush that near two tedious years,
Without relief, my bondage has endured,
Yet know, my English, Norman, Gascoo peers,
Not one of you should thus remain immured.
The meanest subject of my wide domains,
Had I been free, a ransom should have found.
I mean not to reproach you with my chains,
Yet still I wear them on a foreign ground.

It appears, to a casual observer, not a little singular that the merits and exertions of the Troubadours should not bear any proportion to their rewards and encouragements; and that *that* literature, which has served as the model to other nations, has not, amongst its voluminous collection of pleasing productions, left a single masterpiece destined for immortality. Rivals they had none, for such can hardly be called the men who, immured in their convents and shut out from the living world, were solely employed in the dull and tedious, though certainly useful, task of transcribing the ancient manuscripts which were mouldering in their libraries. Their profession, honoured by the patronage and encouragement of the Emperor Barbarossa, of the conqueror of Tancred and of Saladin, of our own Richard, as also of several other powerful monarchs and nobles, at whose castles they were uniformly treated with honour and respect, the path to fame lay widely open to them. With all these incitements and encouragements, however, they stood sluggishly still in their course, and, thinking little of literary fame and poetical immortality, clothed their first thoughts in their first phrases, and eagerly snatched a temporary reward and an ephemeral fame. As they had established in all parts of Europe a common poetical dialect, if any man of transcendent genius had arisen amongst them, it would, in all probability, have soon become the general language of Europe. The art, however, declined in their too sluggish hands; and at the end of the thirteenth century the Troubadour and the *Cantar Provençal*, the sweet songs of Provence, were——no more!

Chivalry, the fairest and most brilliant flower that the “Glorious North” has ever produced, had its rise with the Provençal poetry, and was, in a manner, the soul of the new literature; and to the Goths, barbarous as they were in every other respect, belongs the honourable claim of its production. The Greek and Roman women were uniformly excluded from the public eye, and bore little part in public estimation; they were confined to the exercise of the domestic virtues, and found their reward in the applause of the family circle. Under the Goths, on the contrary, the female character assumed a higher and a prouder rank. As they were believed to be endowed with divine and prophetic qualities, the women attended the public councils, heard the debates of the statesmen, and were called upon to deliver their opinions; sometimes, indeed, they were entrusted with the hazardous task of executing their demands, as it was barbarously, though shrewdly, remarked that predictions were best fulfilled by those who made them. They watched over the interest of the state,

considered its relation with other nations, and sought to improve its policy and extend its power; in short, they felt and bore, with the warrior and the statesman, the cares and interests of the community. In private and civil affairs, their authority was not less decisive; they were thought to have something divine in their nature, and the names of many of them, who were worshipped as divinities, have been handed down by history.* To these imaginary virtues, however, they super-added the real one of modesty, the violation of which was never pardoned. The reserve and coyness of a maiden were her most powerful recommendations, and the lover found, in the object of his adoration, a strict and rigid chastity. But as this equality of the sexes could not exist without a reciprocity of merit, the men, on their side, aspired to the praise of heroic valour. The reproach of a woman filled the coward with the bitterest sorrow, and stamped him with the most indelible infamy. "*Hi*," says Tacitus, "*cuique sanctissimi testes, hi maximi laudatores.*"† These virtues long continued to defend, reward, and perpetuate each other; and when the northern tribes had made their conquests, these principles, instead of being enfeebled by the change of climate and of manners, found ample room for growth and expansion in the feudal governments into which all these tribes eventually subsided.

Under the thrice-favoured sky of Provence it was that, amid a thousand little baronies, chivalry assumed those forms, alternately gay and serious, which are still so fascinating to the retrospective observer. And though it is to northern France that we must look for the lengthened romances of chivalry, yet we find that the *earlier* specimens of Provençal poetry display a veneration for its beauties, and, amid the degradation of the age, manifest a respect for honour, and a love of noble feeling. The women were still looked up to with respect and adoration, and were regarded as the judges of personal merit; and to some distinguished lady did the valorous knight ascribe the glory of his achievements, and dedicate his *lais*. The praise of his mistress was to the knight the spring of his valour and the source of his activity; her eye lighted in his bosom the fire of ambition, and to her were all his trophies consecrated; for her he

* "Inesse quinctiam sanctum aliquid, et providum putant nec aut consilia earum adspernantur, aut responsa negligunt. Vidimus sub Divo Vespasiano Velledam diu apud plerosque numinis loco habitam. Sed et olim Auriniam, et complures alias venerati sunt, non adulatione, nec tamquam facerent deas."—Tacitus, *De Mor. Germ.* cap. 8.

† Tacitus, *De Mor. Germ.* cap. 7.

fought and conquered, and to gain her approving smile he would rush into danger, and cover himself with dust and blood. "*Ah ! si ma Dame me voyoit,*"* was the exclamation of the knight, when performing some hazardous feat of valour ; and to love "God and the Ladies"† was one of the earliest lessons in chivalry. Let us cursorily glance at the education which the novice had to undergo prior to his elevation to the rank of knight.

Every descendant of a gentlemen, or every free person, was allowed to bear arms, and permitted to aspire to the honours of knighthood, which he was, by a long train of services, prepared to receive. At a very early age he was placed as page‡ with some neighbouring baron, where he served the master, but more frequently the mistress, of the house, and in this school he acquired all the knightly virtues. The example of his lord, the emulation of his equals, and the company of the ladies, from whose number he was to select the accomplished fair one to whom he was to ascribe both his sentiments and his actions, infused in his bosom the zeal for religion, inflamed him with a passion for war and danger, and instructed him in all the arts of a respectful and modest gallantry. At the age of fourteen or fifteen the page was called from the exercise of the domestic duties, and was created "*ecuyer,*" or squire. His duty now was to accompany his lord in all his hazardous expeditions ; he also carried his armour, and held his war-horse until he was ready to mount.

* Saint Foix, *Essais Historiques*, tome i. p. 184.

† "Les premières leçons qu'on leur donnoit regardaient principalement l'amour de Dieu et des Dames, c'est à dire la religion et la galanterie."—St. Palaye, *Mem. sur l'Anc. Cheval.* tome i. p. 7.

‡ The page was also called *damoiseau*, or *valet*. The last term was applied only to the sons of men of rank. Thus, Villehardouin, in his *Chronicle*, gives the title to the son of the Emperor of Constantinople. We have also several other instances from the ancient French romances. Thus, in the *Roman de Rou*, speaking of William the Conqueror, it is thus given:—

"Guillaume fut Valet patit
A Falaise posé et norrit."

And again, speaking of Henry II. of England, we have—

"Cinquante-trois ans plus sa terre justisa
Emprès la mort son père qui Valet le laissa."

See also Daniel, *Hist. de la Milice Française*, tome i. p. 95-6; St. Palayé, *Mem. sur l'Anc. Cheval.* partie 1.

“ Ces chevaliers alor otez venir,
 Ces blancs haubers endoper et vétir
 Les écuyers ces bon chevaux tenir.”*

He now became accustomed to toils and dangers, and acquired by degrees the whole science of war. At the age of twenty-one arrived the long-wished-for period of his promotion to knighthood, and great pomp and solemnity testified his advancement to this dignity. The young aspirant was led by his relations and friends to a church, where he confessed his sins aloud, and openly declared his repentance and remorse. Absolution was then given him, and he was then left alone in the church, where he passed the night with patient vigils and pious meditations. In the morning, mass was performed with great solemnity by the priest, who afterwards took the sword and breastplate, which had previously been deposited upon the altar, and returned them with benedictions. The eucharist was next administered to him; and, having previously been bathed, to denote the purity of the state into which he was about to enter, he was dressed in most superb garments, and his sword and golden spurs (the distinguishing badges of knighthood) were put on. He then approached his chief, and, receiving a blow with a sword on his neck, he was dubbed a knight.— This ceremony was concluded with great merriment and feasting, and the *festum tyrocinii* (which was the term used by the old historians to denote the rejoicings attending the investiture of knighthood) frequently lasted several days.

When the warrior was promoted to knighthood, the tables of the sovereign and the nobles were open to him; and in those times no distinction could be more really honourable or more intrinsically important. If, by the chances of war, the knight was taken prisoner, his rank preserved him from all base or ignominious treatment, fetters and chains being deemed fit only for the ignoble. He was allowed to indulge in the richness of his dress and armour, and no one below his rank was allowed to wear gold, silks, or fur. In the field of battle the knight appeared on horseback, attended by his esquire. The principal strength of the then existing armies lay in their cavalry; the adroit and skilful management of a horse, therefore, was of the greatest importance to the warrior knight. The gates of every castle were welcome thrown open to receive him; and the society and praise of his mistress inflamed in his bosom the fire of love, which more

* Thus sings Guyard, a Troubadour. *Alor otez* may be rendered in modern French *à leurs hôtels*.—Daniel, *Hist. Milice Franc.* tome i. p. 94.

than compensated for the toils and perils of war, and served but to feed his passion for arms. The dominion conceded to the ladies was by them deeply felt. Open to public admiration, they studied to deserve it; and intent on the fame of their lovers, and the glory of their country, their sentiments, their affections, were aroused, and as they were deemed worthy of consultation in great and important affairs, their sensibility mingled with courage, and they largely partook in the greatness which they communicated. To be ungallant to a lady was an unpardonable offence; the uncourteous offender was driven from the society of the brave, and the interposition of the injured fair one was frequently necessary to preserve him from death. The rank, duties, and cares of a knight, made him aim at perfection; his honour was as incontestible as his valour; his adherence to justice and his truth undeniably scrupulous. The utterance of a falsehood was an offence the infamy of which was indelible; and the offender was degraded from the rank of a knight. The public and solemn deprivation of all the badges of knighthood, such as the sword, the golden spurs, and the tearing from the body the different pieces of armour, which afterwards were bruised and crushed, appear to have constituted the principal ceremonies of the much dreaded degradation. Religion, however, lent her aid; and after a multitude of symbolic ceremonies, the recreant was dragged on a hurdle to the church, and the prayers and offices which are used for the dead were recited over his body.*

But these pure and stately manners were not to flourish long, and when, in the twelfth century, chivalry fell as a *military* institution, its punctilious honour and scrupulous principles were not to remain in force, nor was the brilliant purity of the knightly virtues to remain untarnished. A general relaxation of principles, and a shameful depravity of morals, prevailed; the women ceased to be the idols of worship, and, falling "from their high estate," they became the mere objects of incontinent desire. The talents which erewhile celebrated the achievements of war, and recorded the valorous deeds of the great and good, were now solely devoted to the passion of love; and it is to be regretted that few, very few, of the *sirventes* of the Troubadours, or the *fabliaux* of the *Trouvères*, can be read without a blush. The ladies, who did not appear in public until after marriage, vied with each other in the merits of their Troubadours. A handsome figure, as well as the talent for lyrical composition, was necessary to the

* Selden, *Tit. Hon.* part 2, chap. 5, sect. 38; St. Palaye, tome i. p. 320.

Troubadour, as it was his constant aim to gain the heart of his mistress; and the rite of matrimony, which formerly was so sanctimoniously observed, was now only wished for to be abused. No lady was without her poet: to compose verses was the surest way to preferment, and men of all ranks found it the surest recommendation to their mistresses. The artificial gallantry of the Troubadour often grew into reality, and the "ladye faire," who at first listened only to adulation, but too frequently yielded to an incontinent love. The enchantment of perpetual flatteries, of tender and impassioned vows, of alluring sighs and of seducing verses, conspired to corrupt the sex; and that cold, unconquerable chastity, that majestic and ceremonious dignity, and that scrupulous and fastidious delicacy, which in former ages had raised it above nature, had withered beneath the increasing immorality of the age. This universal depravity extended to the very privacy of the closet, and the devotee was taught to seek a mistress in heaven, and to look up to the Virgin with the eye of a lover, and to contemplate and apostrophize the graces of her person and the beauty of her mien.* The delicacy of former ages wore away, and, in the south of France more especially, peace, wealth, and a gay or giddy life, engendered amongst the nobility that spirit of voluptuousness, that propensity to vice, and that excess of gallantry, which are generally observed to precede and hasten the decline and fall of nations.

Having thus cursorily traced the rise of that great bulwark of the middle ages, Chivalry; and having partially shown its connection with the Provençal literature, we will, for a future article, reserve the account of the literary remains of the Troubadours and of their followers, the Jongleurs. We shall endeavour to show the reasons of their so rapid degeneracy and sudden decay.

CRITES.

* A celebrated Troubadour thus apostrophizes the Virgin:—"Je suis devant elle à genoux, les mains jointes, comme son très humble serviteur, plein d'ardeur dans l'attente de ses regards amoureux, et d'admiration de son beau corps et de ses agréables manières."—St. Palaye, *Hist. des Troub.* t. ii. p. 225.

(To be continued.)

THE MUSICIAN ABOUT TOWN.

When our last number went to press, the Philharmonic Society had not completed their series of concerts for the season. The eighth and last took place on the 17th of June, when Beethoven's symphony in B flat and Mendelssohn's M.S. symphony in A were performed. The band being more intimate with the former, it went off with satisfactory steadiness and precision; but both the band and audience have yet to make themselves acquainted with the poetry as well as the mechanical intention of Mendelssohn's music. The players are too easily satisfied with expressing the mere phrases (which a steam engine might be made to accomplish with equal certainty), and the majority of the audience, (for obvious reasons) are accustomed to judge of an author's composition by the manner in which it is performed. Such a course would be thought preposterous enough in the reader and auditor of an ode from Milton, or a play of Shakspeare's; and yet neither of these demand more nicety or exquisiteness in denoting the shades of tones in the enunciation, than are required to give a just expression to such a symphony as that of Mendelssohn's in A, which is distinguished by a placid and refined elegance of character, more especially in the andante—a lovely and old-fashioned melody, that might be supposed to have accompanied some plaintive legend; and in the finale, which is instinct with fanciful and brilliant thought; while in its orchestral treatment we trace the varied resources of a great master of combination. In nothing is Mendelssohn more distinguished than by his intuitive knowledge of the genius and capabilities of every instrument in the orchestra, and, above all, in combining them. A charming example of this faculty may be noted in the accompaniment to the celestial voices in the "Paul," and which is confined exclusively to the flutes, clarionets, bassoons, horns, and trombones, while the stringed instruments alone accompany the intermediate recitative of "Paul." Nothing can be in finer taste than the effect produced by the contrast in the above movement. This may truly be called the poetry of instrumentation.

At the same concert Mr. Sterndale Bennett performed his new piano-forte concerto in F minor. Well grounded in the highest principles of his art, and with a bias, both native and cultivated, towards the classical and the beautiful, this young composer has already laid claim to the confident and rational anticipations of his

countrymen ; and Mendelssohn has pronounced him a genius of whom we may feel proud. In the character, both of his compositions and performance, there is an evident feeling of self-reliance without assumption, and an independence of thought and action without fantasticalness or affectation of any kind ; indeed, he seems content to gain the approbation of those who honour the piano-forte compositions of Mozart and Hummel, Clementi and John Cramer ; and he produces all the effects to be desired from the instrument without display or trickery. In short, he appears to be one of Plato's men—the being who “ looks before and after,” and desires to do that which “ posterity will not willingly let die.” May our conjecture and his aspiration be realized ! The concerto alluded to above is distinguished by simplicity and elegance of design, with copious and ornate treatment. The subjects are closely and well followed up ; and the orchestral portion of the work, if not sufficiently full for the modern school of instrumental writing, was, to our taste, ample and satisfactory. In the andante (a beautifully instrumented movement) there is some exquisite discoursing between the wind instruments and the piano-forte. A composition like this is, in our judgment, worth all the affectation and lashing into enthusiasm of the *romantique* school in art—that trumpery apology for slovenliness and impertinence.

The Philharmonic has closed this season with a strong feeling on the part of every one in the profession, and of the most eminent for talent among the directors, that, to maintain its ascendancy, it must undergo an important reform in the management. There must be reform in the band ; there must be reform in the conductor's department ; there must be reform in the provision of new music for the season ; and there must be reform in the directory constituted to judge concerning the new music. The society are in possession, it is said, of many thousands in funded property. If this sum be not a provision in store for the decayed members of the society, (and we have heard that it is not contemplated as a fund for such disposal), it is clearly to be understood why there should be so much caballing to be elected into the directory, and why an incompetent majority there should warily desire that a “ candle-end and cheese-paring finance” should continue with regard to the non-remuneration of the highest talent, and the non-securing, for the exclusive benefit of the society, the best modern compositions. This system should be changed ; and there should be adopted instead a resolution to propose such terms to professors, both native and foreign, as shall ensure the first refusal of original compositions ; and, having

done this, there should be such a preponderance of talent in the directory as shall preclude the chance of a meritorious work being rejected because some of the judges are neither in advance of the age, nor competent to pronounce a correct opinion upon it ; and, yet more, that this preponderance should steadily dam out the pert and washy effusions of pretenders, who happen to have the good fortune to possess friends in the committee of management. There is no question that the close borough system, and consequently, one of palpable favouritism, has, for some years past, reigned triumphant in the Philharmonic Society ; and this dry-rot in the establishment, if not speedily checked, will infallibly bring the whole to the ground. Meritorious artists, who disdain to wriggle, truckle, and intrigue, have either been wholly neglected, or, if engaged, been visited with the *fussiness* of the pettifogging, or thwarted and annoyed by the jealousy, of the grasping and hungry.

The subscribers to the concerts have been much dissatisfied, this season, with the provision of new music that has been set before them, and yet more with the arrangement respecting the singers. In the high walks of the art, there has been no positive novelty in the article of composition ; and, as regards the vocal department, the defalcation has been almost as signally conspicuous. It is idle to answer the complaint of the subscribers by the stale truism, that our native singers have not the organs of the Italians. They have not ; but they possess considerably more various acquaintance with classical composition ; and this knowledge the directors did not convert to sufficient account. Upon most occasions, the singers were huddled together in concerted pieces, and those not sufficiently practised ; and upon other occasions they were allowed to undertake solos for which they were either not qualified, or which, as compositions, were not worthy of the Philharmonic Society's concerts. This department, then, demands especial attention and alteration ; and, in connection with it, the conduct of the band, in accompanying the vocal music, must be reformed. It is to be questioned whether any orchestra in Europe—certainly no orchestra in any capital where music is held in consideration—is ever heard to accompany a singer in the coarse style that distinguishes the Philharmonic performances. It may be an exceedingly good jest with the gentlemen of the band to “Burke” an unfortunate singer ; but it is very offensive to the subscribers, and, indeed, has been so frequently and generally expressed, that they will, no doubt, take an opportunity of signalling their disapprobation of this conduct on the part of the accompanists. Moreover, there is an evident disposition in the

performers to "slubber" their work, which they take no pains to conceal as a labour of duty and remuneration, rather than of love. The rehearsals (particularly of the new and the partially known symphonies) are both few and not unfrequently hurried. At the late Cologne festival, where Handel's "Joshua" and a newly-discovered composition of Sebastian Bach's were performed, Mendelssohn, the conductor, subjected the whole of the band to as many as *thirteen* rehearsals; and, in consequence, the performers not only knew the whole of their music almost by heart, but they had become acquainted with their author's intentions, and were practised in all the lights and shades in expression. When that elaborate work, the choral symphony of Beethoven, was revived last year, the Philharmonic band satisfied themselves, we have heard, with one rehearsal. From such an acquaintance, what more could be anticipated than a creditably correct playing of the mere notes?—a simultaneous union of effect and expression was out of the question. Spohr's "characteristic symphony" was treated with the like parsimonious justice. "They order these matters better in France," as any one may satisfy himself by attending the musical *re-unions* in Paris, and above all by observing the style of accompanying the voice which actuates the whole orchestra at the "Academie de Musique." To sum up all—knowledge, youth and energy must pervade the Philharmonic directory, or a general demand and preparation for incorporating a new society will be heard and set on foot. The first note has, indeed, already been struck in the pages of *The Musical World*, where there have appeared some severely vituperative articles upon the general mismanagement and inefficiency of the directory; and in the number for August 2nd, a correspondent, signing himself "An English Artist," has proposed the incorporating of a new society, to be held in the Italian Opera-house, where there will be the advantage of having the Italian singers. This, so far, is good; but when the writer grounds the desirableness of his new society, and the success of his plan, upon the single circumstance that it will be a "*fashionable reunion*," (which the Philharmonic is not), and "*fascinating to the aristocracy*," from the simple circumstance of its being held in Her Majesty's Theatre, one can scarcely forbear a smile of wonder as to what peculiar atmosphere of the profession the "English Artist" has inhaled, that he should, for one moment, entertain the idea that the class of music performed at the Philharmonic concerts will "fascinate" our aristocracy, and thereby render the new society a "*fashionable reunion*." The *exclusive* selection of modern Italian music would doubt-

less secure the patronage of the fashionable portion of our nobility ; but that is not the class of composition which the "amateurs" of the Philharmonic would tolerate. Our aristocracy—the fashionably-influential portion of it at least—are pleased only with modern music, and that of the newest mint. Her Majesty, who, one would have thought, from the character of her teachers, and consequently of her education, must have imbibed a different taste, has shown an exclusive preference for the modern Italian school of composition : for she rarely missed attending her own theatre throughout the season ; whereas, in contradiction to the reported high taste of her Majesty in musical matters, she was present at one performance only of the Ancient Concerts ; and then the Italian singers were summoned, whom Mr. Laporte had withheld from every other public concert in London, except those which were held in his own theatre ; while the Philharmonic Society, with its magnificent orchestra and unrivalled collection of symphonies, were not, in one single instance, honoured by the personal sanction and approval of her Majesty. The fashionable elite, therefore, of the aristocracy, are ill inclined to patronize that class of music which is the sole support of the Philharmonic Concerts, and for the performing of which the society was instituted. Its primary object was to produce, for the benefit of the profession and the classical amateur, the most sterling instrumental compositions of the great masters ; and it will continue to receive the exclusive support of these two classes till the "fashionable portion of the aristocracy" condescend to bestow their patronage on that which has already been received with rapture for years by their plebeian brethren.

The Italian Opera closed on the 18th of August, after a season of extraordinary brilliancy and success. Reports are, of course, afloat as to the amount of profit accruing to the lessee in consequence of this brilliant season ; and their range is somewhat fantastic, varying from 0 (zero) to £.45,000. One theatrical statist, calculating from the average bulk of the audiences, concludes that his quotient in favour of the lessee cannot be less than the higher sum named ; while the green-room gossip and quid-nunc insinuates the edifying fact that the whole of the profits have been divided among the Jews, the ostensible speculator not having benefited himself to the amount of one farthing. Neither account is, probably, correct, nor, indeed, is either result of the slightest consequence. Whether Jew or Gentile have made a fine harvest by the predilections of the wealthy, we care not one straw ; but it were desirable that so powerful a body as our rich aristocracy should give a healthy tone to the taste-

ful sciences and arts in their countrymen, and not submit to be the dupes of humbug, more especially of foreign humbug. With the exception of the orchestra and the principal singers at the Italian Opera, and one or two of the dancers (for the majority of these are offensive posture-makers), the general management of that theatre is a disgrace to the country. In scenic effect, theatrical properties, theatrical illusion, machinery, and in all the minor details of stage direction and conduct, it is half a century behind Covent Garden; with which establishment it will no more bear comparison than the old oil lamps of the last century in Grosvenor-square, can compete in brilliancy with the modern gas-lights in plebeian Oxford-street.—With their individual power and collective influence, what might not half-a-dozen noble subscribers achieve in the way of reform at the Italian Opera, if they were so inclined? Under its present management, the stage business goes on with a perfect contempt of all scenic propriety and good order. The lessee appears to consider that the whole of his duty to his subscribers is comprised in the engaging of good singers and dancers, while the rest of the *materiel* is scarcely an affair of even secondary consideration: it may shift as it can for itself. The supporters of the establishment may rest satisfied with at most two or three new operas in the course of the season; while, in the same lapse of time, at Covent Garden theatre the manager will have produced (and in a style of unexampled magnificence) half-a-dozen revivals from the highest classical school in the art, with almost the same number of original dramas. What important revival has Mr. Laporte brought forward this last or, indeed, any former season? and what have been his new pieces? Since our last number went to press, a virgin opera has been produced at Her Majesty's Theatre. We have been favoured with a composition which had not previously for months been running the circuit of the Italian, Austrian, and Parisian theatres. Mr. Balfe's "Falstaff" may not equal in merit the best productions of Pacini or Donizetti, but it was decidedly better music than four-fifths of that which we have heard in the same house from those fashionable composers. Yet "Falstaff" (perhaps because it was the work of a native) was endured only for three or four nights. This circumstance was the more mortifying since the "libretto" was positively respectable (for a modern opera), and the performers evinced a unanimous interest in the success of the composer. The piece had not received sufficient rehearsal; and we heard that Lablache expressed a wish to have more time to study, and give that full and rich development to the principal character upon which the very existence

of the opera depended. On the first night, therefore, a want of his accustomed ease and fluency was perceptible. One benefit, however, may be derived by the English school, and reflectively by the musical public, from the production of the "Falstaff;" and that is, that since the Italian performers will condescend to learn a new opera for an English theatre, whether it may not be worth the consideration of the noble patrons of our Royal Academy, and of the science in general, to offer a handsome reward every year for the best native composition, with the best libretto, and to use their influence in having it brought out in their own aristocratic theatre. By this plan the English talent will be brought into the same arena with the Italian, and (national predilection aside) we should have no fear of the result with all unprejudiced men of science. So long as English talent is shut out from competing with foreign talent *upon the same field*, while the latter is unduly encouraged, so long will the native artist feel and write at a disadvantage. The same exclusiveness does not exist with regard to our painters. At the Royal Academy exhibition, and at that of the British Institution in Pall Mall, and which is supported entirely by the aristocracy, our artists maintain their dignity in the best possible fashion, by affording ready admittance to compositions of foreigners. Here native, German and French talent, are frequently brought together on the same stage, and to no disadvantage of the native artist. If the English musician were encouraged in the same liberal manner, there is no question that in a few years we should number the Ettys, the Wilkies, the Turners, the Landseers, the Calcotts, in the English school of music; for a more energetic people than the English, or one that will with greater manliness and constancy struggle against an obstacle, or that can with greater facility direct at will their intellectual faculties, does not exist in the whole world. What they have achieved, and are achieving, in the elegant arts, through clouds of difficulty, coldness, and embarrassment, is heroic, is gigantic. They deserve not the neglect of their wealthy brethren.

At the English Opera, which has for a few weeks past been open, under the principal direction of Mr. Peake, a new musical piece has been brought out, composed by the clever pupil of the Academy, young Macfarren, entitled "The Devil's Opera." The plot and dialogue are from the pen of the composer's father. Had the latter been as successful in his department of the labour as his son, we should have had a conjoined work exhibiting more than ordinary talent. But our musical dramatists are usually very unfortunate in the vehicle they employ for carrying out their compositions. Some

of the most meritorious dramatic writing of the English school for several years past, and which must have become eminently popular, had the incidents and dialogue of the pieces been ingenious and attractive, have died away for want of co-operative support in the outset to give them notoriety. The junior Macfarren, like almost all ambitious youthful composers, has, we think, been a little ostentatious in the instrumentation of his opera, and which is also a common defect in youth. This is at times displayed to the detriment of the vocal score. The character of his instrumental music, also, is not uniformly in keeping with his subject in the drama immediately before him. It is not comic; neither is it diabolic; and his overture is decidedly commonplace. Against these drawbacks may be placed some very pleasing vocal melodies; and one trio for female voices, in round or canon ("Good night! may slumber lend its balm"), which it were no extravagance to pronounce exquisite in character and ingenious in detail. There is also a very pretty *barcarole* in the second act, and a sweetly plaintive song for a tenor, "Oh, blame me not that I have strayed." The trio will, in all probability, become a favourite concert piece. The chorusses—indeed, the whole of the music, is strictly dramatic: we may, therefore, and it is with gratified feelings that we express the opinion, look with confidence to the future efforts of this meritorious young musician.

By the last annual report of "The Sacred Harmonic Society," whose performances are held in Exeter Hall, it is with much gratification that we notice the steadily increasing prosperity which attends all their movements. We take no ordinary interest in the transactions of this energetic body of amateurs; both for the beneficial influence which their performances are evidently producing with the middle and lower classes of society, in directing, regulating, and refining their tasteful perceptions; but also because we have watched its progress almost from its infantile commencement. This large association of five hundred members was originated by its present conductor, Mr. Joseph Surman, a man of unwearied perseverance and industry. He, with five or six associates, held their first meetings for the practice of choral singing in a small back room in the suburbs of the metropolis. With, of course, no audience to encourage them, this was the outset of their career; and by their last report, for 1837, it appears that their eight meetings for the year were held in the audience of fifteen thousand and thirty-five persons. The performances consisted of the "Messiah" three times repeated; Mendelssohn's "St. Paul" twice; the "Israel in Egypt," with a selection; Haydn's "Creation;" and Handel's "Dettingen

te Deum," with Mozart's "Twelfth Mass." One of their last performances has consisted of Spohr's "Last Judgment;" and which, although creditably executed throughout, failed in producing that effect upon the audience which we had confidently anticipated. The only approach to a spontaneous admiration manifested was at the impressive chorus, "Holy, holy, Lord God Almighty." But the fact seems to be that these unsophisticated listeners, being so accustomed to the gigantic construction and massive simplicity of feature in the chorusses of Handel and Mendelssohn, could not relish the everlasting modulations and chromatic progressions in Spohr's music. Those concerted movements, therefore, which have hitherto given so much pleasure to the cultivated musician—such as the quartetts and semi-chorus, "Hail, our Redeemer," "The graves yield up their dead, the seals are broken," and "Blessed are the departed," all of which are full of chromatic progressions and enharmonic changes—were listened to without emotion. It is true, that being excessively—we might say ostentatiously—difficult, and written only for first-rate vocalists, they received only indifferent justice in the performance upon the present occasion. But it appears to us that, from the very principle of their construction, the chorusses of Spohr are not calculated to produce an effect with large masses of singers; and for the reason already given. They are elaborate, in most instances exquisite, quartett movements, but frequently want the true choral feature; and the chief cause of this, assigned by a musical friend is, that the music of Spohr is constructed upon the chromatic, whereas that of Mendelssohn is upon the diatonic scale—and that is the scale of nature.

In the report of the proceedings of "The Sacred Harmonic Society," (the fifth from its commencement), it appears that the balance in hand is £393, 18s. 6d., an increase of £378. upon the previous year. This circumstance alone affords the members no slight ground of encouragement and self-approbation;—encouragement, not to relax in their exertions till they have funds to build a hall of their own (and which, with *firm union* and wise economy, we doubt not will shortly be in their power); and self-approbation when they reflect that this large and well-conducted association has been the unaided construction of a few individuals possessing neither aristocratic, pecuniary, nor professional influence; but is simply the result of excellent plain sense, business-like habits, an instinctive perception of that which is true and enduring in art, and last, though not least, of a wise determination to rely upon their own individual

energies and exertions. Most strenuously, then, do we advise them to continue as they have hitherto proceeded; to seek no foreign alliance or incorporation; to keep their power in their own hands; to *engage* what professional talent they may require, and not to put themselves in a position to be influenced or dictated to by professional talent. Let them once become encrusted with the mildew of professional intrigue, and rottenness at the core will speedily follow. Leave professors to cope with professors; but professors with amateurs, each possessing equal privilege, cannot consociate, because their *interests* diverge at every step: the amateur's is gregarious, that of the professor is single and exclusive. Let the members also ever bear in memory the services of the founders of their society, of them who have "borne the heat and burden of the day," in advancing them to the position they now hold. Let them jealously watch the actions, and reject the insinuations, of the busy and the envious. Many of the society will comprehend this hint which has been thrown out, and to what transactions it points. Nothing more certainly relaxes the sinews of a young association, and benumbs mutual confidence, than a wanton endeavour to shoulder aside its original founders. The above advice can proceed from no other than a friendly feeling, since the writer possesses not the slightest claim upon the society, either as a professor or member.

It may be worth the committee's consideration whether two or three, or even more, of their public meetings, should not consist of one miscellaneous act, and that to comprise a selection of the finest choral anthems and *Te Deums* of our great church writers. The *Te Deums* of Purcell, for instance, and the magnificent anthem of Blow, "I was in the spirit," with the vocal power of this society, would have an inconceivably grand effect, and, with such an aggregate, would form a new and interesting feature in musical performances.

Our report of the "Ancient Concerts," and the "Societa Armonica," for the season, may be comprised in a few words. The former, with an opulent library, such as can scarcely be equalled in the musical world, is content to repeat the most familiar movements of the most familiar oratorios—thread-bare songs and worn-out old glees—those selections being the least hackneyed, and, indeed, in every respect, the best, when Lord Burghersh was director for the evening; and the Societa Armonica, with the advantage of obtaining the assistance of the Italian singers, on account of the meetings being held in the concert room of Her Majesty's Theatre, will, in all probability, deteriorate, if not fall to decay, for want of skill,

punctuality, method, and order in the administration. The inefficiency and slovenliness manifested in the conductor's department, upon several occasions during the past season, were the frequent theme for animadversion among the subscribers, and were echoed in no lenient terms by the critics in the periodical press. With their several resources, and under a spirited and effective management, these two societies would quickly rise into great importance; as it is, they are only a subject of regret or contempt with every one acquainted with their capabilities.

GENTLENESS IS POWER ;

OR, THE STORY OF CARANZA AND ABORZUF.

BY CHARLES COWDEN CLARKE

IN the land of Tartary, some thousands of years ago, reigned a king whose name was Azum Beg, and he had an only daughter, called Caranza. Like all kings, and, indeed, all other men who are born to live upon the labour of their fellow-creatures, he possessed many virtues which nature had bestowed upon him, and many vices, which sprang from his unwise education and uncontroled self-will. He was mild and generous to his attendants, munificent and parent-like to his subjects, so long as both the one and the other did not disturb his tranquility, or contradict his inclination: he possessed the quality (which some people even do not) of being amiable when he was pleased. But Azum Beg had very little self-government, and, like almost all spoiled children, he rarely allowed the welfare or even comfort of others to interfere with his own; as, indeed, we shall see hereafter, he was content to sacrifice his only child, rather than abandon the poor ambition of being an absolute monarch.—Azum Beg was royally obstinate, and purely selfish. Had he been nursed in adversity and schooled in endurance, he would probably have been a venerable man; for he did not act unjustly from a mere love of tyranny, neither did he bestow his favours with a miserly or grudging hand: but he wanted the magnanimity to bear misfortune,

and the true wisdom to think for others as well as himself when assailed by it.

The Princess Caranza was, in some respects, the totally reverse character of her father. She inherited all his stubbornness of will, and determination of purpose, with his generosity of disposition; but she went far beyond him in the one, seeing that she could yield, and with the sweetest grace, when no worthy triumph was to be effected by holding out, otherwise she would have been torn in pieces by wild horses first: and in generosity she had learned that what would be that virtue in a poor or humble subject, in one holding her station was scarcely to be called a merit. She had learned that for a princess or other wealthy person to dispense large sums of money, or rich presents, was little more than giving herself pleasure, and no inconvenience; and that, to be truly generous, she must submit to this in small things as well as where great good was to be obtained. It was upon this point that Caranza was unlike her father: her happiness arose from making all around her happy, but not in making them happy in order that she herself might be so—she would then have been selfish. She was gentle and kind by nature, and she was wise by education. The queen, her mother, who had been the only watcher and guardian of her conduct, was the daughter of a poor shepherd. Her uncommon beauty had caught the eye of Azum Beg as he one day rode out to hunt, when, with the wilfulness of one who had never known controul, he ordered that she should be brought to his palace the next morning. The second view of her fair and lovely features, together with her simple and honest speech, so wrought upon his mind, that in a few days he made her the partner of his bed and throne. The king, without being aware of it, had espoused a maiden whose mind was as pure as her face was beautiful. Sufeika (for that was the name of the queen) had been born, nursed, and brought up, in the school of adversity and toil.—She had known many privations, and had learned to value the blessing of cheerful and active exertion. Her mind had never been debased by indigent misery; and now that this sudden prosperity had come upon her, it was so far from disordering her well-balanced judgment, that she did not forget the class she had left, but constantly directed all her influence to benefit and exalt the members of it; and, indeed, many of the edicts and royal ordinances intended to advance the interests and comforts of the common people, and for which Azum Beg gained all the credit and popularity, had been the result of the queen's suggestion and entreaty. This noble-minded

woman, who thought for others more than she thought for herself, was the worthy guide of her daughter's conduct.

Caranza had little to learn from her mother, whose intelligent mind, generous disposition, and gentle nature, she inherited. The point of her character to which Sufeika directed all her attention, was that unbending spirit of determination which stamped her the child of Azum Beg. The value of this quality for arduous enterprises, and mental as well as bodily endurance, she accurately estimated. Her care, therefore, was that it should assume the character of lofty and steady perseverance, and not decline into perverse and unreflecting obstinacy. To accomplish this, she accustomed her to reflect upon her own inclination before she proceeded to act; to be cautious in doing that for which she could not after respect herself; to observe the conduct of others, and, if possible, justly, at all events charitably, to interpret their motives; and, lastly, to pursue no purpose which should give pain to another, unless by doing so she could benefit many.

Caranza adored her mother; and as love will so engross the mind as to make us unconsciously not only imitate the actions, but even to a degree mould our features after the object beloved, so this beautiful specimen of humanity became the counterpart of her mother, with a spirit for endurance superadded, which, perhaps, under the same trial, Sufeika could not have equalled, certainly not exceeded.

It was a beautiful sight to behold this young creature when she went forth from the palace for the purpose of administering to the comforts, or hearkening to the sorrows, of some humble individual whose distresses had reached her; and it was a heaven to listen to the tones of her voice (tender and mellow as those of the dove in a silent wood) as she soothed or cheered the objects of her attention and care. "When the ear heard her, then it blessed her," for "she delivered the poor that cried, the fatherless, and him that had none to help him." Her voice was a medicine to them; it was soft and very cheerful. Despondency never entered her heart (which she proved when her trial came); her tones, therefore, always roused the dejected or downfallen, and after she had gone away the sweet recollection of them, together with the mild look of her deep, blue, innocent eyes, left an odour and a blessing behind, as of a wafted censer. Caranza had learned from her mother the value of useful occupation to every individual in society, however high, and, of course, however low, their place may be appointed; and she found, by observation and her own example, that each individual has a separate duty to fulfil, besides that of administering to his im-

mediate necessities—which is, to assist his neighbour. Caranza considered all mankind as her neighbours. Though a princess, and, as might be supposed, one who had nothing to do the whole day but contemplate her robes and her jewels, or ride abroad upon her favourite camel, surrounded with attendants, she nevertheless contrived very fully to occupy her time with considering the petitions of the unfortunate, helping the industrious but needy trader, and supplying the utterly destitute with means to obtain a livelihood. She herself was never idle; she could, therefore, with a safe conscience, require that all who applied to her for relief should show that they were ready, by industry, to apply that relief to a worthy account. One of her plans was, to purchase wares from the small merchants and beginners in trade, and supply those who had not wherewith to commence as traders. When these returned to the princess with the produce of their little store, she rewarded them with the half of their industrious traffic, and supplied them again and again with merchandize, till they were able to become purchasers themselves, as well as sellers; at which period they received from their benefactress a public token of her approbation. Let not the reader smile at the thought of a princess, so many ages ago, acting in the way described. The world is not so young in wisdom as we wise moderns would fain believe; the greatest and the best people that have lived have not had the good fortune to be recorded in history.

Till the age of eighteen, Caranza had pursued this course of conduct, blessing and being blest. But now the period of her trial approached. So fair, so good a creature, should have had no trials; no furnace of affliction need have been applied to test the unalloyed purity of that gold. Yet was it well that she suffered; for she was enabled to carry her unselfish principle to its utmost extent; a great reform was wrought by her example; multitudes were released from ignorance and suffering, and rendered happy; while she prepared for herself a crown of honour—an amaranthine crown, woven with the blessings of grateful hearts, gemmed with the radiance of smiling eyes, and glorified with the light of celestial approbation.

The first sorrow which smote at the door of that constant and loving heart, was the death of the queen-mother. Sufieka died as she had lived, calmly, simply, without vain-glory; charging her daughter to let her funeral be conducted with no other pomp than the attendance of such of her subjects as loved her while living, and cherished her memory when dead. The only testimony of affection and token of remembrance that she left with her child was, a

homely earthen pitcher that had been her constant companion in youth, when feeding her father's flock, and which she used in common for supplying the sheep and herself from the spring. This was the sole relic she had reserved of her humble state of maidenhood, and she enjoined her daughter to bear it with her wherever her future lot might be cast, as it would serve to remind her of her mother's simple and innocent origin, and check any rising thoughts of superiority in rank or station. "I die," said, she "with cheerful satisfaction, because I have fulfilled my destiny. I was granted but one image of myself to rear, and so precious is that one to my heart, so kindly has it yielded to my fostering hand, that I leave it without a sad thought. For we shall be separated only in the body, Caranza; my spirit will be ever near you, to cheer you in trouble, and comfort you at all times. I shall behold your opening eyes, and watch at your side when their lids are closed. When the storms of sorrow rise (for storms you must have), remember that your mother is near you, and be steadfast."

Without the city lay an extensive plain, and in the centre of it was a rising ground. Here Caranza, by the consent of the king, ordered that the last ceremony of disposing the remains of Sufeika should be solemnized. No troops attended the procession, no pomp, no pageantry. But the whole city, and all the country round, poured forth their thousands; so that, by the time the sun had just appeared above the edge of the plain, the area round the hill was one sea of population; and at that point of time issued from the city gate the corpse of the queen, borne on the heads of loving servants, and followed by Caranza alone; for as it was not the custom of the country that the king should attend any funeral, Azum Beg, rather than infringe the rule of a state ceremonial, was content to forego the paying the last tribute of affection to a virtuous and magnanimous consort. Azum was selfish; he therefore gladly pleaded an insignificant excuse for absenting himself, where he would have been the least important person in the procession. He could not afford the bereavement of state pageantry, trappings, and garniture. He remained behind, and was not even thought of.

They laid the dead queen upon a lofty pile of wood, made more inflammable by odoriferous gums, oils, and resin; and while the purifying element was performing its fierce office, Caranza, apart, upon her knees, with all the multitude following her example, awaited the consummation. Nothing was heard throughout that peopled space but the roaring of the fire and the smart chidings of the burning timber. When the sacrifice was completed, the ashy

remains of Sufeika were brought to the princess, who, with a deep sigh, enshrined them in the earthen pitcher, the early companion and expiring gift of her noble parent. As she prepared to return home, an affectionate "Farewell" rose from the multitude. Caranza's heart melted with tenderness at this devotion to the memory of her mother, and for the first time in her young life she felt the value of a good name. And so, with her simple pitcher (now rendered inestimably precious to her) she walked back to the palace, followed by that grateful people.

Very shortly after this event, Azum became involved in war with a neighbouring potentate, whose name was Aborzuf, a man endowed with a lion's heart and a lion's strength. Like the lion, too, he gloried in contention and existed by strife. Slaughter and blood were his pastime; blood was his daily food; blood was in his thoughts, his nightly dreams, and his waking acts sounded of blood; he ramped in blood. His power and bold ferocious daring made him an object of awe to the surrounding princes; while his own people never mentioned his name but under their breath. When he appeared abroad he was clad in armour and thronged with soldiery. They who should have been as his children fled at the sight of him, and huddled like a flock of sheep when the butcher enters the fold. Terror was the principle of his government; and by terror, and by fostering the instruments of tyranny, his soldiers, he ruled, or rather murdered, the wretched creatures who lay prostrate beneath his sword. But Aborzuf was not only a monster in mind—as a man, he was monstrous. When a child, his form was airy, frank, and noble—it was angelic; his disposition was mild, generous, and even magnanimous. "Oh, fairest flower! no sooner blown than blasted." We are but as we are fashioned; and it was the evil destiny of Aborzuf to be placed under the instruction and moral guidance of a demon in the outward form of God's fairest creation. This bad spirit, who had gained absolute dominion over the mind of his victim-pupil, had so perverted the early tendencies of his nature, that "evil had become his good," and deformity his loveliness. He had instilled into him the belief that, in order to hold, as it were, in the hollow of his hand, the wills and the lives of his subjects, he must be to them outwardly, as well as mentally, of another creation; he must terrify, and not assimilate. He therefore fashioned his body to correspond with his mind, and that was of hideous proportion and aspect. It was covered with a grisly hair; and to any one who *could* attentively look upon his face, that was evidently but a frightful mask—a loathsome scurf, that had crept over the young fresh-

ness of heavenly candour and beauty. One thing, however, the demon could not annihilate in his victim. Outwardly horrible, even appalling, he had made him, and mentally deformed and wicked; but he could not quench in him that spark divine, the *consciousness of good*. He had brought him to *hate* goodness; but with the hate had fortunately come the awe, and even the fear, of moral truth, and the holy beauty of loving kindness and long suffering. His perception, too, of personal accomplishment, had not been suffered to expire, yet was it converted into a fierce and animal passion. Every thing was to yield before the storm of his will; and his love, like his warfare, dictated submission or devastation. This was the king who, unfortunately for Azum, had become his foe.

The rare beauty and accomplishments of the Princess Caranza had not been the talk of surrounding kingdoms and provinces, without their fame having also reached the ears of Aborzuf. He immediately fired with the desire of obtaining possession of one that was an object of envy to all his brother potentates; and as, in a former contest with Azum, he had so weakened the power of that prince as to reduce him to the condition of becoming a tributary for the tenure of his crown, he felt assured that the simple signification of his will must produce an acquiescence with it on the part of that monarch. In terms, therefore, which wore rather the air of command than of a courtly treaty, he proposed himself as the consort of Caranza. Azum Beg was ill prepared for such an appeal, and still less inclined to such an alliance; but he knew his own weakness, and he more bitterly knew his neighbour's power, as well as his mental and bodily ugliness. Under any circumstances he could not have acted magnanimously in his present situation. He resorted to meanness and insincerity. An embassy was returned to the court of Aborzuf, stating that a treaty of marriage for the Princess Caranza was already in progress. Had the statement been true, Aborzuf would not have foregone his claim; but, by his emissaries, he knew it to be a deception. In the torrent, therefore, of his rage, he swore that in one month from that day he would be before the walls of Azum Beg's palace, and claim the hand of his daughter. "And tell your master," said he, "that if he then, in the minutest point, obstruct my purpose, I will tear his whole city to the ground, and bring the silence of the grave into his provinces. He knows me, and that, in my threats at all events, I keep my oath."

The result of this embassy stunned the whole court of Azum Beg, who, with an imbecile selfishness, wandered about his palace, weeping and wringing his hands. The news also quickly spread

over the city, and struck terror into the hearts of its inhabitants. In the event of either alternative (the refusal or acceptance of Aborzuf's terms), they were certain of being melancholy sufferers. In the one case, they would be sacrificed to his fury, or carried away captive ; in the other, they would lose the object of their (all but) adoration. Amid the tumult of apprehension and dismay, Caranza alone appeared to be calm and dignified. Her own resolution was quickly taken, and she would as promptly have acted upon it. But Caranza thought not for herself exclusively ; her father was to be considered, and the people with whom, by constant intercourse, she had formed an almost equal sympathy—that large brotherhood, whose joys she had participated, whose wants she had relieved, whose sorrows she had allayed, and whose strifes she had appeased. These were strong ties : yet did not Caranza wholly disregard her self-preservation ; for she was a mortal, though she had drunk deeply of that everlasting fountain that knows no taint of impurity. She, therefore, from the mere impulse of nature, first thought of her own safety, with that of her parent ; to secure which she proposed that without delay he should abdicate his throne, and that both should speed away beyond the reach of the tyrant. “Jewels we can take, my father, amply to protect us against dependance or casual need. And even should the calamity of destitution fall to our lot, never shall I lose sight of my mother's origin, and of my mother's spirit. I feel that I am now more than ever her daughter, and in humbleness and poverty will foster you as she did her parent. Never shall you know one privation beyond the pomp and service of royalty. The gentle ministrings of a tender and dutiful affection shall take the place of precise and unloving punctuality. For the cold obedience of a hired servitude, you shall have the quick forethought of a fond and dutiful child. The heavy frivolity and the airy substance of ceremony you will lose, it is true ; but in its place you shall have the large and weighty comfort of unbought, ungrudging attendance. Oh ! my father, the glory of dominion is a vain thing, except it go hand in hand with the desire to scatter the seeds of beneficence, and to water the growing flowers of wisdom, which is, universal loving-kindness. Throw aside this jewelled yoke, and cast away this costly emptiness ; but oh ! save me from the jaws of the lion, and yourself from the reproach of having abandoned your only one to his gluttony !”

This appeal staggered the faculties of the vacillating, prostrate Azum Beg. He would act generously, he would act magnanimously, had he ever once learned to forget himself, and to sink that

forgetfulness in consideration for others. Moreover, he was a man in years ; and a self-seeking youth never makes a disinterested old man. He had also, through life, been accustomed to the formality of council—the coldness of deliberation and the ceremony of delay and indecision had encrusted his mind. The limbs of his energy had stiffened and distorted with contraction ; he could not decide with promptitude, even in an affair of ceremonious observance : what effect, then, the sudden proposal of abdication must have produced on such a mind and such a disposition may be conceived. It seemed to deprive him of breath and to envelope his faculties in a mist. He talked of degradation, of bereavement, of faded honour, and departed glory. He hoped that the future consort of his daughter had been misrepresented ; people are seldom so wicked (particularly those in high station) as the world described them to be ; every body possessed some quality ; in short, he wanted no cabinet council where his interest was concerned : but the question of abdication was an affair of state—the welfare of his people was to be thought of—a sacred duty—his future provision was to be arranged—his restoration (if feasible) to be guaranteed—every thing, indeed, was rapidly enough considered that would touch his own miserable comfort ; while his noble-minded daughter was all but overlooked in the struggle of self-sheltering from the impendent storm. (Reader, think not this picture overcharged : it could be identified to its minutest line and feature.) Azum Beg resolved upon three days reflection, after his council had been in close debate for a week. Caranza, sighing, shook her head and withdrew to her chamber, ruminating sad thoughts on poor humanity and her own future prospect.

In one fortnight from the day of his threat, Aborzuf, with his wild horde, were before the city of Azum Beg. The whole of the frontier army was driven in like leaves before a hurricane, and the conqueror with the news of his approach arrived together. Short and uncourtly was his summons, as might be expected. “ For the sake of the fair Princess Caranza, King Aborzuf will forbear his assault upon the city of King Azum Beg till the morrow’s noon ; when the prize of his hopes and present undertaking will be on her road from the city to meet her victorious suitor, or the bond of his oath will be straitened with an un pitying hand.”

Now was there hurrying to and fro throughout the city. King Azum and his whole court were paralyzed. The streets were thronged with anxious groups of faces : women with children in their arms, and who seemed wholly unconscious of their burthens, hastened with pale faces from crowd to crowd, col-

lecting reports and retailing them for facts. Here, soldiers, singly or in pairs, who had fled from the frontiers, silent, ashamed, sullen, or answering with blunt and niggard speech the clamorous volubility of the artisans. The old people and the mothers hoped that King Azum and the princess would consider their people, and avert, by timely submission, the destruction of the city. The young, the ardent, and the prodigal of life, were for resisting the invader to the uttermost, and finally dying with the lovely object of their veneration in the flames of her palace. All was confusion and dismay.

In the palace the night was passed in hurried council—project after project, for gaining time, was proposed. Hour succeeded to hour, and no resolution was taken, till the princess (the innocent cause of the impending calamity, and there present) perceiving that it was reserved for her to conclude the conflict of opinion, and to disperse the storm that threatened the ruin of her country; with meek aspect, yet streaming forth dignified energy and benevolence, arose at the right of the throne, and laying her hand on the arm of her father, said—“In any other presence than this, I might now complain that the one of all our nation whose peace of mind and prosperity were most in peril, had been held in the lightest regard. When the enemy, however, is at the threshold, time is then most ill—indeed, it is never well—spent in uttering reproaches. To the purpose, therefore, of this assembling. It appears, lords, in my poor judgment, that there are three modes by which the threatened evil to our country may be averted or quenched; and in all these (woe is me!) must I be doomed to be the cause of much anguish, or the shedding of life in multitudes of unoffending citizens—or of undergoing an extremity of sorrow in myself.

“First, then, the evil might be quenched by flatly rejecting the imperious demand of the invader, and daring him to the accomplishment of his design; for we can but die; and so knit are the souls of our citizens in unity of love and devotion to the unworthy one now addressing you, that, although the foe would doubtless fulfil his undertaking, he would nevertheless do so at stern cost of trial and life; and if this were all, defiance and resistance to the death were our wisest alternative; but when I think, in the event of defeat, how the storm of retribution would rage, and destroy the helpless victims of its fury—and with tenfold horror, should the tyrant lose altogether, by her death, the object of his invasion, I cannot consent, lords, to purchase my safety or revenge at so sad a cost.

“The impending calamity might be averted wholly in my simple person, by the unwise spurning of heaven’s choicest gift—life. I could, with a well-compassed artifice, foil my ravisher, and shiver in pieces the cup at the moment when its possessor was pressing it to his lips. And I fear not to do this—I fear not death; but I fear to do an unworthy thing—I fear to act cowardly. Endurance of evil with constancy is the truest bravery. Were it, therefore, only the offering of the most acceptable sacrifice to the memory of her who showed me, by her own blessed example, the beauty of steadfastness in all things good, I should perform the hard task now set before me. To-morrow, at the appointed time, I leave my father’s house.”

So saying, with a blushed cheek of modesty and maidenly consciousness, she left the council. The soft yet prevailing tones of her voice rang in the ears of all her auditors, each of whom, while he hallowed the victim, humbled his soul in self-abasement before the magnitude of the sacrifice.

The few hours of solitary seclusion previously to the solemnizing of the marriage ceremony are rarely passed by any maiden unaccompanied with perturbed and tumultuous emotions, even though the prospect of her future course of life appear placid, shining, and joyous. She is about to yield every prerogative, but that of thought, to the dominion of the stranger. She abandons her freedom of action to the controul of another she does not unerringly know; for the prologue to the drama she is about to enact is not always a faithful promise—nay, it is frequently a false guide to its intent, progress, and consummation. She throws a fearful stake. All may be a faithful prescript of after fulfilment, and all may be “false and hollow.” Alas! for the woman who, after reaping the harvest of plighted truth, discovers in the rich garner of her stored affection the creeping mildew of doubt, mistrust, and unkindness. The bitterness of this lot, at all events, was not prepared for Caranza: she could have no misgivings—her career admitted of no doubt—a frightful certainty stared her in the face; and appalling as this was, it may be deemed preferable to the cruelty of a blighted hope. Her night was passed, like the felon’s, in the stupor of sleep. The gentle, ministering hand of nature came to the relief of her over-strained faculties; for the outward calm and apparent self-possession of the sweet martyr, were but the personation of a lofty spirit, which could not descend to the level of selfish weakness that she saw around her.

Before the hour for leaving her native home—the scenes of all

her gracious thoughts and acts ; the home, every quarter of which was become precious to her, being connected with the memory of her sainted mother, whose spirit was ever present with and confirmed her constant heart—before the hour arrived that was to separate her from all she loved, Caranza was prepared to depart. Unlike her conduct upon the former procession, which was in character with the simple beauty of the occasion, she now arrayed herself in the most gorgeous apparel suited to the most festive solemnity ; she demanded the attendance of all the court pageantry ; the royal palanquins and the royal camel was brought forth. Every warrior in the city had orders to fill the train ; not a point was to be omitted which would swell the pomp and gaudiness of the parade in the common eye ; for Caranza knew that she was making an appeal to a common mind, and one, therefore, which, so far from being able to appreciate her native simplicity of character, would have construed the absence of regal accompaniment into a studied insult, and have been stung thereby into ten-fold exasperation. Azum Beg had signified his will to accompany her to the place of her destination ; for now the arrangements were suited to the educated habits and taste of the monarch. But the weak old man did not perceive that, by being present upon such an occasion, he was infinitely humbling himself in the eyes of the superior and delicate-minded among his subjects—that he was ostensibly sanctioning the sacrifice of his only child—that he was, indeed, conducting her to the altar. Caranza apprehended at a glance the misery of his situation ; and although he himself was incapable of feeling his own mental prostration, she could not endure such an exposure, for the native pride and delicacy of her heart were wounded through his self-betrayal and unconsciousness of true dignity. She, therefore, with animation and firmness, resisted his proposal, placing her objection, as regarded his order of mind, upon the safest ground. “ My own personal sorrows, my dear father, are sufficiently piercing, and they will demand all the added support of my blessed mother’s ministering influence and consolation to bear ; but the idea of your being subjected to the triumphal taunt or vulgar glory of your victor, would deprive me of all power of self-conduct. Contempt, bodily subjection, injury, I can endure—it is my sex’s inheritance ; but the author of my being must not be smitten with insult before my eyes. You must not accompany me. Farewell, my dear father ! May that Being who through life has been my friend (had he vouchsafed me no other blessing than such a mother as fell to my lot) comfort and sustain you ! Cherish the memory of your daughter,

as being the image of her. Be kind to all my poor pensioners ; I leave you them as my legacy ” and with a choked voice she hurried from the room, followed by the streaming eyes and bewildered looks of her unfortunate parent. “ Stay for the lords in waiting ! ” said he, but she was out of reach of his voice ; and with an hysterical sob he sank into a chair.

Caranza was seated in her palanquin, and the procession had begun to move towards the city gate, followed by the whole population, every individual striving to obtain a parting look from the beautiful object of their idolatry. Numberless were the sighs, and the ejaculations, and the bewailings, and the heart-burnings, that arose from the mass, as her very lovely and gentle face passed before them. She made a strong effort to be serene, and even to smile, but the evident failure of the endeavour the more strongly smote upon their hearts, and their poor untutored sorrow overswelled all bounds. As she approached the city gate, a rush was made by the young and robust to gain a last look. She waved her hand, saying she “ hoped soon to see them again ; ” when the sound of her own voice at that place and juncture of time (the moment of quitting for ever all that was dear to her), burst the floodgates of sorrow ; and, bowing her head, she gave free course to the torrent.

Aborzuf waited the approach of his prize, his heart beating high at the success of his dictate ; and scarcely could he allow the princess to draw near to his tent, when, darting forward with the spring of a tiger, he was at her side, and with a chuckle of exultation seized her hand. His advance towards her, although partaking of the ferocity of his character, was intended to be anything rather than revolting ; but, indeed, he could not conceal the impetuosity of his delight. Caranza was prepared for an exterior of more than ordinary ill favour, and she was prepared for a savageness of manner ; her imagination, however, apprehensive and vivid as it was, had fallen short of both realities ; nothing like Aborzuf in either quality had ever before been presented to her. The suddenness, therefore, of his approach, added to the absolute contact with him, produced a revulsion which caused every nerve to throb and tingle with anguish. With great promptness and rapidity of utterance he ran over several common-places, ending with “ Our royal brother and father-in-law, madam, has not seen fit to sanction our union with his presence : he no doubt has been well counselled. We will return home without delay.” The order was instantly given, when the whole army struck their tents, and commenced a rapid retreat.

The unhappy victim had no sooner passed the frontiers of her own territory than she quickly perceived, both in the face of the new country and the complexion of its natives, how marked is the difference between the effects of a peaceable, fostering government, and one whose sole principle is self-aggrandizement, at the cost of comfort, and even human life itself. The land was barely and slovenly cultivated; the inhabitants, when they did appear in sight, were either squalid, listless, and dejected, or looked to be idle and ruthless banditti. The dwellings were far asunder, and were composed of palaces that seemed with instinctive suspicion to stand aloof, sulen and dumb; or of mud hovels that, in her own land, would not have been employed as a shelter for the beasts of the field. All whom they passed looked with an indifferent eye upon their future queen; for misery and oppression had closed their hearts. Her own yearned for them, while she thought to herself "If my life be spared, your condition shall be amended." Caranza was the bright-blown bubble of buoyancy and hope. Hope, constancy, and confidence in goodness, lent a cheerful serenity to her conduct in the midst of things evil. As an instance of this, during her journey, though she had not trusted herself a second time to behold the face of her companion, she could not avoid listening to his speech; and she derived some consolation from remarking that the tones of his voice gave a total contradiction to the reputed ferocity of his character. They were clear, soft, breathing, and earnest, and, as she thought, sincere.

Their travel had now concluded. They had arrived before the walls of Aborzuf's palace, which, for construction and aspect, might have constituted a sixth order in architecture, and have been named the "pure DESPOTIC." The sweet heart of Caranza ached when she beheld her future home; and it melted as into water when, in passing the enormous iron gates, she heard bolt after bolt grating behind her.

With a loathing to dwell upon details of horror and wretchedness, we pass over the nuptials: they were secret and hurried. Still less could be touched upon those sacred festivities which, under the most angelic auspices, are suffered to remain mystical and exclusive. The coronation was conducted with a boisterous yet melancholy splendour; no citizen felt an individual interest in the personal joys or comforts of his ruler, because their several interests were divided. Yet they could not look with indifference upon the heavenly face of their young queen; for it beamed goodwill towards all, and they felt that the sun of blessedness had risen upon them.

Not many days—not many hours—after having become the consort of the tyrant, the gentle stranger was compelled to be an eye witness of his wanton cruelty. A heavy contribution had been levied, by his order, upon the commonalty, for the purpose of defraying the expenses of some former wars. A citizen, who had been summoned by the collectors to pay his portion, complained that not only the soldiery, but that every individual connected with the court, were exempted from contributing to the tax; and he moreover threw out, in his bitterness, an indiscreet hint that Aborzuf had very good and sufficient reasons for keeping the soldiers and all about his person in good humour with him. The time-serving tax-gatherers reported this discontented speech, and as busy an officer conveyed it to the king, who in a transport of fury ordered the seditious to be instantly arrested and brought before him. Caranza was present upon the occasion, and entreated him not to take the sword of justice in hand with a heated and resentful spirit. “Madam,” he replied, “so little have I been accustomed to advice or dictation, that I shall compel your presence during my examination of the rebel.” He then led her forcibly by the wrist into a courtroom bordering upon the presence chamber, where he was accustomed to try offences and award punishment. The miserable delinquent was placed before him, and at his side stood a ruffian with a drawn sword. A single question was asked of the witnesses as to the truth of the reported speech, which being repeated, Aborzuf gave an accustomed signal to the by-stander with the sword, who had the grace to hesitate, awed by the benignant and imploring look of the queen. “Strike, villain!” said Aborzuf, in a voice of thunder; and in an instant the sufferer’s head rolled upon the floor, while the body, in a torrent of blood, fell towards the judgment-seat. Scenes and acts such as the above were the subjects of almost daily occurrence. In a tumult of horror the gentle Caranza reached her chamber, where, in deep affliction, she laid her cheek against the homely earthen pitcher, and in tones of passionate sorrow implored guidance and protection from the divine spirit that once animated its earthy contents. When her prayer was ended, a soothing influence crept over her mind as from some mild narcotic, and she distinctly saw her mother’s form, and heard an injunction to “remain steadfast to her faith in goodness.”

Upon every event of oppression and cruelty on the part of Aborzuf, Caranza observed that he uniformly avoided meeting her sight. Bold and bad as he was, the devil in him ever “looked abashed” in her presence. His first attempt to overawe her mild nature by his

wanton murder of the citizen, had totally failed ; and he felt this. He disgusted, shocked, but could not frighten her ; and this consciousness of inferiority stung him into madness. Whenever, therefore, he had committed some act of wholesale enormity, he usually absented himself, upon a pretended hunting excursion, for a few days. These days of recess from pain and brutality were uniformly turned by Caranza to a golden advantage. She would seek out the families of those who had suffered from tyranny, and by her sympathy and worldly comfort redeem, so far as lay in her power, the melancholy privations they had undergone. With an extraordinary assiduity, too, she had brought her former plan, pursued towards her own people, into action ; very partially, indeed, for the oppressed, the degraded, and the mistrustful, are ever slow at improvement. Nevertheless, in a few months so much good had been effected, that the report of it reached the ears of Aborzuf. His envious rage now knew no bounds. He stormed from room to room of the palace, till he came to the small private apartment devoted by Caranza to her meditations and communions with the spirit of her sainted mother. Here was enshrined her poor pitcher ; and here he disturbed her as she was singing, in low and sweet tones, a hymn of praise and gratitude to the giver of all good, for the blessing of hopeful thoughts, and of such a mother as rarely falls to the lot of mortal. In frightful contrast with her soothing voice and tranquil occupation, he taxed her, in a tone of frantic vehemence, with plotting against his government ; and before she could reply to his insane charge he seized the pitcher, and knowing it to be a relic she prized above every earthly gift, he dashed it through the casement. It fell without the wall of the castle, and was scattered into fragments. With a piercing cry of grief, the devoted creature sank for a few moments upon her seat, then, collecting her thoughts, she approached her torturer with a look of dignity and emotion that quelled for a time the storm in his transported and fierce mind ; while, in a fervid strain of complaint, and with a strength and energy of tone she had never before been called upon to exert, she said, “ Months have passed away, Aborzuf, since you tore me from my home. I was made the victim of your unjust power ; and though a feeble and an unprotected maiden, you have never, in one instance, made me a compensation for the sacrifice to which you doomed me. In all these months I have known no happy moment, except when in the exertion of that simple office which you would now wrench from me—the comforting the afflicted, and the making my fellow beings happy. Do not suppose, however, great as is your power, that you are enabled to bend

me to a course of life which my soul disapproves—nay, lift not your hand till I have ceased to speak, and then act according to your will. I fear not to die, Aborzuf: you do, because you are conscious of a reproving heart. You may torment, you may kill me, for I am but as a moth in your hand; but as long as I live you never can, and never shall, prevent my seeking my own happiness in the way I have been trained, and which I hold supreme. You have this day, in my own person, crowned all your former acts of unkindness and cruelty, by depriving me of the only remnant that linked me with her whom I prized beyond the whole world. You have dishonoured the ashes of your wife's parent. You have vilely scattered them abroad. But mark me, Aborzuf! If, in pursuing your violent course, you do not meet an answering death, you will bear witness that as the winds shall carry those light ashes over this city, so will the spirit that inhabited them pervade all your land. The seed is sown, and you will now vainly endeavour to root it out." Then, looking him in the face with that divine aspect owned only by transparent goodness and simplicity, she concluded, "I leave you, with the prayer that the influence may descend upon you of repentance, with the reformation of just and holy deeds." As she was going towards the door, however, he darted forward, and, seizing her arm, threw her into the middle of the room, exclaiming, "We shall see who is to conquer, your mother's spirit or your lord and sovereign. You will now consider yourself a prisoner, till you give me your bond of oath to act only according to my commands." He then flung out at the door, which he locked behind him, giving orders for no one but the person he should appoint to approach the queen.

Day after day, and week after week, thus passed by this heroic, yet gentle creature. No inducement, no privation, no threat, could extort from her the abandonment of her principle. The tyrant, although kept in a state of furious fever by her steadiness and serenity, could not conceal from his own soul an involuntary respect towards her, for, indeed, the mere tenacity of purpose that she manifested struck a responsive chord in his own breast; and but for this sentiment (much as he loved her, after the habit of a sensual and self-willed worldling), he would quickly have cut the gordian knot of his annoyance by hurrying her out of life. After the lapse of a few months, during which time the people, upon missing the kind face that so frequently used to come among them, had begun to indulge in conjectures. These increased into open murmurs, ending in threats of no equivocal character. Their many torments and oppressions had

stung them into the mad bravery of despair. Groups of the poor citizens were seen conversing in under tones. Their movements, with the various expressions that had been suffered to escape, were reported to the king, who, with the confidence arising from an unchecked sway, determined to crush in the egg this rising popularity of his queen. For this purpose he ordered that the troops always stationed about the court should divide into parties, and, patrolling the streets, disperse by force every company of citizens conversing together. The mercenaries of a tyrant are usually faithful to their employer, for his existence depends upon making it their interest to be so; fortunately, however, they are as rarely actuated by the stubborn bravery which springs from devotedness. This was the case with the troops of Aborzuf. They executed their commands with the punctuality and unfeelingness of mechanism; but they had not committed a second act of barbarity before (as if by the firing of a train) every quarter of the city burst into a blaze of open rebellion. The soldiers were overwhelmed, and borne away in the fiery torrent. They might with equal chance of success have stormed a volcano. They who formed the rears of the corps, and could effect their retreat, precipitately withdrew to their fortification, the palace. The news of their reverse (an event upon which the king never even dreamed of calculating) struck him, for the instant, motionless as a stone. But the next moment placed him in full possession of the command of his faculties. He saw that every chance of success must now depend upon his personal energy. Accordingly, putting himself at the head of the retreated troops, he was quickly in the heat of the fray. The presence of Aborzuf, for a time, checked the confidence of the multitude; his known personal valour and unwearied good fortune had invested with a charm whatever he undertook. The tide, therefore, began to ebb; the populace staggered, and gave ground. The king, perceiving his advantage, availed himself of it with promptitude and fury. His charge was terrific; he was seen in all quarters, animating his soldiers, his voice rising above the storm, and piercing the air like a trumpet-charge. In a better cause he would have been deified; as it was, he inspired admiration and awe. If everything, however, depended upon himself whether he should remain conqueror, or become less than a cipher—an outcast, a corpse, or at best a prisoner; his opposing subjects had risked their all upon a no less tremendous stake. With a simultaneous impulse, therefore, they rallied, and once more threw their enemies into confusion. Still the king remained in the rear of his routed soldiers, exerting an almost miraculous energy,

when, at the very threshold of his castle, falling, exhausted with toil and wounds, he was dragged within the barrier, and the gate closed. As he was being carried to bed, he roused himself sufficiently to give orders that the queen should be released from her chamber.

Caranza had been a spectatress of the conclusion of the struggle, and upon leaving her place of confinement the sounds reached her ears that the people were forcing the outer gates. The thought immediately occurred to her that she might be able to stay the fury of the assailants. Relying, therefore, upon the affection with which she was universally regarded by them, she entered a sort of balcony above the entrance of the castle, just as the whole tide was pouring into the court, roaring for revenge upon their oppressor. The scene of their passion now rapidly changed; for upon beholding her pale and sweet face, who they undoubtedly thought had been quietly murdered, their shouts of triumph rose into a frenzy of delight. Still they made a movement to enter the building to search for the tyrant; when she signalled them into attention, and then, in short sentences, deplored their sufferings and the cause of them; and as she knew that they could trust her word, she promised, if they would return peaceably to their homes, that no effort on her part should be omitted to indemnify them for the past, and guarantee the future. "I," said she "will now be your sovereign and protector, and if I fail to fulfil the pledge I have given, my life be in your hands." Oh, how lovely, how divine a spectacle was it to behold this personation of Power in Gentleness! to see those small, beautiful, and soft features, presented to the frightful distortions and turbulent passions of an exasperated multitude, reeking with blood, dust, and sweat; and to hear those peaceful tones coming against harsh discords of anger, "smoothing the rugged brow of 'that' night!"

Having so far succeeded to her wishes, she selected from among the principal citizens men of good repute, to carry into execution the first part of her promise (that of being their protectress as well as sovereign), by relieving those families that had become destitute from the death of their chief supports, and providing assistance for the wounded. This unexpected act of attention to the comforts of the people, coming so quickly upon the heels of their resentful feelings, confirmed the calm that had succeeded.

The next duty Caranza had to perform was not so pleasant an one—it was that of visiting the wretched and misguided cause of all the sorrows that had befallen herself, himself, and his unoffending peo-

ple. The most pitiable condition to which humanity can be reduced is, the enduring of bodily pain with an upbraiding heart. Like antagonist powers in mechanism, each acts upon and strengthens the other. Aborzuf was, in every point of view, an object of commiseration to a humane and reflecting mind. He was a specimen of a nature primitively good, but which has been distorted in the training. He was a man of fearless courage and unbending pride, who had been vanquished by a mere mob. He was deplorably wounded; his career of life, he knew, had been little better than one scene of violence; he was in the momentary expectation of a fate to which that of the common felon is enviable; and, to complete the catalogue of his miseries, the conviction that he had not attached to himself one affectionate heart, smote upon his own with unpitiful retribution. In this state of body and mind he lay, alternating groans of anguish and exclamations of remorse, and which, at times, bordered upon delirium. Caranza for some time stood at his side, without his being conscious of her presence. At length the sound of her voice in a degree recalled his scattered faculties so far as to enable him to enquire where he was, and to demand something to drink. His ministering angel answered the first part of his request, adding that all was peaceable without; and in complying with the latter she mingled a mild anodyne with his draught, which soothed him into a refreshing sleep. When he awoke the same attendant was at his side, ready to anticipate his wishes and necessities. With a hand soft as settling gossamer, and a promptitude and assiduity in which woman ever will remain unrivalled, she dressed his wounds and arranged all his little comforts. Her foot-fall about the room was inaudible, and her answers to all his questions were low and cheerful. When he desired to know how the fight had ended, she pleasantly answered by desiring that he would use his endeavours to be quickly recovered, and all should be told him. This state of things continued for many weary days; at length, after a month of severe suffering on his part, and of unmitigated attendance on her's, upon one occasion, while she was performing for him some little office of gentleness, and that he had continued thoughtfully musing upon all her generosity, she was surprised to perceive a tear upon his cheek. "Surprised," indeed, it may be said, for she never could have anticipated from him such a manifestation of the softer feelings of our nature. Hope, that ever rode triumphant upon the waves of all her troubles, inspired her with an emotion to avail herself of the golden moment, and, with her own sweet confidence in good intention, she

kissed his terrible face, an action then performed for the first time. The fetters of his stubborn nature now fell off, and with a voice betraying a deep-seated sorrow, he began :—

“ Never since I was a child, Caranza, and played at the feet of my mother, have I known till now real happiness, or the beauty of truth and sincerity. If I may judge by my present sensations, our natures were not originally very diverse ; but different indeed have been the courses pursued in our education ; and I fear mine has been vicious in every sense. Hitherto I have acknowledged nothing pleasurable but the sense of unrestrained power, nothing glorious but absolute dominion, and nothing beautiful but the unconditional subserviency of both body and mind, in those unhappy people over whom it was their misfortune that I should be placed. I believe I have committed many unjust actions—many cruel ones. Amid all my violence and injustice, however, you cannot lay to my charge the one of having, in a single instance, deceived you—I never told you a *LIE*. I take no merit to myself for this solitary virtue in my character, as regards yourself, for I was too proud to stoop to the act, knowing my power over you to be paramount ; neither have I considered it always a virtue, because I never perceived that my tutor was over scrupulous upon that point with others—with myself I believe he has been uniformly sincere ; for, indeed, he is acquainted with my nature, that it were ill for him to deceive me. I say, then, as I have never, amid all my injustice, insulted you with a lie, that it is my intention to amend your station for the future in my kingdom, and that my own conduct shall, if I can compass the attempt, undergo a reformation towards my people. I know you to be discerning, I have proved you to be steadfast, and unvaryingly kind and good ; you must, therefore, have perceived, from the first days of our union, that these points in your character commanded my respect and forbearance ; and well for us both that you possessed them.”

“ Kind Aborzuf !” said the delighted Caranza—(how little did she ever dream of being permitted to use such an epithet !)—“ you may judge of my feelings at this moment from the enviable state of your own. It were idle to deny that the latter months of my life have been most unhappy, and the more so because I had almost begun to fear that the last resource of the unguilty sufferer—*HOPE*—was dying within me. In any other frame of mind than that in which I so happily find you, the above complaint should never have passed these lips, but you are now worthy to hear such a confession, because you can better appreciate my heart, and because I would fain indulge a par-

donable self-love, in losing no opportunity of multiplying your respect for me ; that, indeed, I never would have forfeited—no unkindness, no oppression, should ever have induced me to swerve from the path which the unerring principle of loving-kindness informed me was correct. We are both conquerors ; but the higher glory is due to yourself ; for you have not merely had the courage to avow an error, but the desire to amend it.

“ You have signified your intention of amending my future condition in the ordering of your empire. I ask for, and wish no change, Aborzuf, but your full confidence in my honest purpose, and your consent to go hand in hand with me in promoting the comfort and prosperity of those subjected to your charge. Since the event of that fatal day, yet fatal only to misguidance and evil council”—here a flush of disapprobation crossed the cheek of the king—“ pardon me, Aborzuf, I speak not in a vain-glorious or triumphant spirit, but of congratulation. Since that day I have been ruler and guide of the people—paramount ruler in the best sense of the title, for I was unanimously elected by them” (Aborzuf started, and the quenching embers of his former spirit evidently began to rekindle) “ but I accepted the trust for your advantage only ; had my purpose been dishonest, I could have abandoned you, in your helplessness, to the unrestrained resentment of the triumphant populace, and have either usurped your place, or, at least, have returned to my own happy people. But my motive for securing the absolute sway of government, during your indisposition, was, that I might remain wholly unshackled by the interference or dictation of that bad spirit under whose guidance it has been your ill fate hitherto to have been subjected. I know him, Aborzuf ; and so well does he know and fear me, because he trembles in the presence of the Being I serve and adore, that never since our union has he dared once to look me in the face ; and you must acknowledge that all the melancholy acts of your life have sprung from his suggestion ; and that, from the day of my entrance into this kingdom, not one of them has been proposed in my presence. You are conscious of his fearful influence, although you would gladly conceal it from your own heart ; but believe me, Aborzuf, your present noble resolution of amendment can never be carried into full effect without a sincere out-pouring of the heart before the Spirit of Beneficence, and the determined banishment of your former counsellor. He is the author of all your troubles—he is a demon ! The influence of blessedness is now upon us ; confirm your resolution by casting him forth.”

At this moment a swarthy vapour was perceived at the farther end of the room, and from the darkness came forth a graceful form, beautiful and winged, that was about to address the king; when, as from a sudden consciousness of danger, Caranza seized his hand, and looking full at the vision, vehemently repeated her last words—"confirm your resolution: cast him forth!" "I do," replied Aborzuf, "and will hereafter dedicate my life to deeds of mercy." No sooner were the words uttered, than the form of the vision changed into one of monstrous shape and size, wherein were distinctly recognized the features of the demon-counsellor, yet distended and forced, as by venomous infusion, into frightful aggravation. With the bloated fury of disappointed lust he raged against his victim, making at the same time a motion to seize him in his clutches; but on the instant, opposite to the princess and on the other hand of the king, was seen the sainted form of Sufieka, so like to her daughter that it seemed her very self *beautified*. With a calm look she waved back the shape, and said, "A higher power than thine, the author and dispenser of all benevolence wills that the self-corrector should undergo no other penance than the active prosecution of loving kindness and of all gentle deeds. Thy kingdom here is ended." Then, turning to Aborzuf, who sat as one entranced, she continued: "With reformed conduct, my son, shall come an answerable exterior: as thou hast returned to the innocence of thy childhood, thy form shall assume the consummate perfection of youthful promise." So saying, she shrouded him from view as in a clouded veil, when, with the passing of a thought, the loathsome incrustation of ugliness fell from him as a slough, and the angel presented to the bewildered and delighted Caranza a noble reward for all her filial piety, patience, and keen suffering, a reformed husband. Aborzuf was indeed reformed in every sense of the word; so complete was the change in his person, that the lovely creature stood gazing upon him in imploring wonderment, not daring to believe the truth of her senses. She thought it all a delusion, till he, unconscious of his altered appearance, and unable to account for her behaviour, spoke to her. The sound of his voice, being the only thing she could recognize of his former self, and that, although sweet and manly, recalled so many bitter associations, that she fell and embraced his knees, weeping. He continued his appeal, soothing, animating, protesting in tones so honest and yet plaintive, that her heart unfolded as a flower to the sunbeam; and, before the day had closed, the gentle creature found herself by turns upon his neck; standing

before him, scrutinizing his features, with her hands upon each shoulder ; laughing, weeping, singing ; undertaking a thousand little domestic offices of kindness and attention, and leaving all unfinished to return and embrace the object of them. When, of his own accord, he kissed her lips, she felt that her heart was there too. Hitherto she had known the happiness of conscious rectitude and benevolence ; she now, for the first time, tasted the happiness of pure wedded love —*that* was her bridal night. Aborzuf's deportment was, as may be supposed, less demonstrative, less tumultuous than that of his inestimable partner ; it was not, however, in many respects, less enviable. If there be so great "joy in heaven over one sinner that repenteth," the joy of the sinner himself is a foretaste of that heaven. It is a joy to throw aside a burthen of sorrow ; and no sorrow can compare with the one arising from heavy self-conviction for injustice and unkindness. Of all sufferers bad men are the greatest objects of pity, for they have no city of refuge ; they have no consolation ; they have no "small still voice" whispering peace. Aborzuf's life had been one series of horrid errors arising from a diabolical education, of which he was brought to the knowledge by a few weeks of remorse and reflection, forced upon him by observing the sweet and cheerful constancy of that womanly heart which shone brightest in his adversity. He felt the folly of injustice, and he imbibed that "wisdom which is truly fair"—the wisdom of gentleness and forbearance.

Events like those which have been related could not have occurred unblazoned in a hovel ; in a palace they must infallibly be known, and quickly. The news of the king's metamorphosis, therefore, both in appearance and conduct, had become the subject of universal conversation and astonishment : very few, however, allowed themselves even to hope for such a fortune, and none believed it. Aborzuf himself confirmed the report ; for, with wise dignity, he adopted the only course to secure the respect and confidence of his people. He put forth a proclamation avowing the error of his former government, which he attributed to its just cause—that of having had a bad tutor and a bad minister, whom he had banished ; concluding with a determination to devote his best energies, for the future, towards promoting the happiness of his people, more especially of those families that had suffered by his misguided judgment.

Shortly after, a public festival was appointed, when Aborzuf, leading by her hand the author of his new-found peace of mind, came forward to preside at the solemnity, first presenting her to his people as their guardian angel, and the one to whom they were indebted for

all the wondrous and happy changes that had succeeded. His air and manner were, as may readily be supposed, embarrassed at first, for the alteration in his person produced so marked an effect upon the multitude, that he was forced upon the reflection of his former state of deformity. This made him, at times, grave and pensive, which his partner, with a woman's quickness, perceived, and always contrived to give a turn to his thoughts, by directing his attention to some groups of happy faces, or by some speech of tenderness and merriment.

Little remains to be told of the history of Caranza and Aborzuf. Shortly after the event just described, news was brought of the death of Azum Beg ; upon which, the young queen, knowing how highly she stood in the affections of her own people, accompanied by her consort, instantly set off for her father's court, and so politicly did she dispose all arrangements, that she and Aborzuf were unanimously elected joint successors to the vacant throne of her father. One half of the year, therefore, was passed by them at each capital ; and both nations were blessed, for many years, with the prosperity resulting from wise and mild governance.

Thus they lived happily, and communicating happiness ; and after her death, the memory of Caranza survived for many ages under the emblem of a favourite flower, similar to our everlasting pea, to which they gave her name, on account of a peculiar property it possessed of flourishing and blooming most sweetly when most crushed by obstacles or ugly weeds.

Women ! I am proud to say, that there are among you many unchronicled Caranzas.

PROCEEDINGS OF METROPOLITAN SOCIETIES.

ZOOLOGICAL SOCIETY.

JUNE 26th.—A live specimen of the Peregrine Falcon was exhibited, which had been captured, about three hundred miles from land, on the Atlantic. Mr. Blyth then produced a new arrangement of the class of birds, which occupied the attention of the meeting for the remainder of the evening. After discussing at some length the relative value of different characters, considered as bases of classification, or indicia of the true physiological relations of organisms, and drawing a wide distinction betwixt the fundamental characters, and those secondary and comparatively superficial modifications which are merely especial adaptations to locality or the mode of procuring sustenance, Mr. Blyth proceeded to indicate the following as distinct orders, together with a few peculiar genera which could not be legitimately admitted into any of them:—

1. *Scansores* (Climbers): composed of the Parrots exclusively.
2. *Raptores* (Preyers): corresponding to the *Accipitres* of Cuvier.
3. *Strepitores* (Screechers): or those *Insessores* of Vigors which have a simple vocal apparatus.
4. *Cantores* (Warblers or Songsters): consisting of the remainder of the *Insessores* of the quinary classification.
5. *Gemitores* (Cooers): or the Pigeons.
6. *Rasores* (Scratchers): or the Poultry group.

Hereabouts, it was stated, should range the singular and anomalous genus *Opisthocomus*, and probably the *Mesites* of De Blainville.

7. *Cursores* (Runners): or the genera destitute of a sternal process, the *Oiseaux abnormalaux* of L'Herminier and other French naturalists.

8. *Calcatores* (Stampers; ground-patters): or the Bustards, Plovers, and Snipes; also the Sheathbill, the Courlan, and some other remarkable genera which accord in their anatomical conformation.

9. *Gradatores* (Stalkers): or the Cranes, the Storks, and Herons, and perhaps the Trumpeter and the Cariama.

10. *Latitores* (Skulkers): or the Rails and Gallinules.

11. *Natatores* (Swimmers): restricted to the *Lanellirostres* of Cuvier, with the addition of the Flamingoes.

12. *Mergitores* (Immergers): or the Loons and Grebes.

13. *Piscatores* (Fishers): or the *Totipalmati* of Cuvier.

14. *Vagatores* (Wanderers): or the Gulls and Petrels.

15. *Urinatores* (Divers): or the Auks and Penguins.

Should it be desired to collate these numerous ordinal divisions into higher groups, it was suggested that the successive modifications

of the foot for perching, for ground habits, and for swimming, afforded available characters; whence the terms *Insessipedes*, *Telluripedes*, and *Natantipedes*, were accordingly proposed; though it was remarked that these more general grand divisions were of little practical value, and their limits could only be arbitrarily assigned.

Proceeding next to treat of his several orders more in detail, the author first enumerated the many peculiar characters of the *Scansores*, or Parrots, and stated his reasons for placing them at the head of the system, preceding the *Raptores*, as among *Mammalia* (by general consent) the *Quadrumana* do the *Carnivora*. He knew of no character, beyond the reversed outer toe, wherein the Parrots resembled the other *Zygodactyli* of Temminck and others, from all which they differ most essentially in the conformation of the skeleton, of the digestive organs, the organ of voice, and even of the foot itself, on which the division *Zygodactyli* of other systematists solely rested. Their brain is more highly organized than in any other birds, whereas that of the other yoke-footed tribes was stated to be remarkably low; and some additional characters, presenting a curious analogy with the *Quadrumana*, were likewise indicated. The utter distinctness of the Parrots, also, from all other birds, the absence of even a tendency or approach to a gradation or transit into any other group, furnished occasion for some remarks on the popular theory, which contends for the existence of intermediate forms connecting every group together by a series of links; a theory which, it was asserted, could never be maintained by those who have investigated the anatomical structure of the various orders of birds, as laid down in the communication then before the society.

The *Raptores*, or birds of prey, required little definition, as so obvious a group had already met with general acceptance. It would be sufficient, therefore to call attention to one fact, of which few naturalists seemed to be aware or adequately appreciated. The genera *Falco* and *Vultur* of Linnæus, on the one hand, and *Strix* on the other, present strongly-marked and invariable distinctions, both in the conformation of the skeleton and digestive organs, which distinctions, it was affirmed, are as forcibly maintained in the most hawk-like Owls and the most owl-like Hawks, as in those which have been deemed the types of their respective families: conformably with which distinctive difference, in kind rather than in degree, Mr. Blyth proposed to arrange the *Raptores* into two tribes, which he designated, for uniformity of termination with other equivalent groups, *Retectirostres* and *Intectirostres*.

The *Strepitores* were treated of in considerable detail, and resolved into three primary groups, and many subordinate ones, as shewn in the annexed tabular representation.

STREPTITORES.	Syndactyli	Buceroides	<i>Appendirostres</i>	<i>Buceridæ</i> —Hornbills
			<i>Arculirostres</i>	<i>Upupidæ</i> —Hoopoes
		Halcyoides	<i>Cylindrirostres</i>	<i>Meropidæ</i> —Bee-eaters
			<i>Angulirostres</i>	<i>Coracidæ</i> —Rollers
			<i>Serratirostres</i>	<i>Halcyonidæ</i> —Kingfishers
			<i>Levirostres</i>	<i>Todidæ</i> —Todies
	Zygodactyli	Picoides	<i>Galbulirostres</i>	<i>Galbulidæ</i> —Jacamars
			<i>Cunéirostres</i>	<i>Prionitidæ</i> —Motmots
		Cuculoides	<i>Curoulirostres</i>	<i>Rhamphastidæ</i> —Toucans
			<i>Trogonoides</i>	<i>Musophagidæ</i> —Touracos
			<i>Parvirostres</i>	<i>Bucconidæ</i> —Barbets
			<i>Tenuirostres</i>	<i>Picidæ</i> —Woodpeckers
Heterodactyli	Cypseloides	<i>Accurvirostres</i>	<i>Cuculidæ</i> —Cuckoos	
		<i>Caprimulgidæ</i> —Moth-hunters		
	<i>Trogonidæ</i> —Trogons			
		<i>Cypselidæ</i> —Swifts		
		<i>Trochilidæ</i> —Humming birds		

All of which numerous divisions were successively descanted on, more particularly as regards their anatomical characters of agreement and difference.

The *Cantores* were more summarily disposed of; the author expressing an intention to treat on the sub-division of this order in a special memoir. It differs remarkably from the preceding group of *Streptitores*, in being as difficult to sub-divide as that order was to bring together in large groups; for, though containing, perhaps, triple the number of species, at the lowest rough estimate, the resemblance, in all the essential details of structure, was stated to be so exceedingly close throughout, that divisions of analogous value to those distinguished by names bearing the termination *rostris* could scarcely be instituted. After describing several constant and invariable characters peculiar to this strongly-marked, vast order, and offering a few general concluding remarks, postponed the consideration of the remaining portion of his *Systema Avium* for a future occasion.

A discussion ensued, in which satisfaction was expressed that the internal conformation of birds, which had hitherto been much neglected by the generality of systematists, had, in this instance, received its due share of investigation.

JULY 10th.—A fine mounted specimen of the Burrhal Sheep was exhibited, the skin of which had been forwarded to the Society by J. E. Bicheno, Esq. This animal was killed at an altitude of 1700 feet on the Himalayas, near the Berinda Pass, communicating with Chinese Tartary: it is a species of most excessively wary disposition, so much so, that, in the notice accompanying the specimen, it was stated that no previous example of it had been obtained by Europeans; and the individual sent was killed by a rifle bullet at a distance of 300 yards. Mr. Ogilby, however, observed that a specimen, unique until that time, existed in the museum of the Linnæan Society; and stated his conviction that another species of Mufflon, with enormous horns, inhabited the same colossal range of moun-

tains, although Mr. Hodgson, who formerly held a similar opinion, had since resolved what he described as two Himalayan species of *Ovis* into one. Dr. Canter then read an interesting communication on the Marine Serpents of India, a group of animals which had hitherto received but slight attention on the part of naturalists, in consequence, perhaps, of the danger which attended the study of them in the living state, together with their geographical distribution, which is confined to the tropical seas. They were stated to be very numerous around the delta of the Ganges, where they are commonly taken in the fishermen's nets. Their anatomy, with the modifications it presented in reference to aquatic habits, was then given in detail. All of them were described to be, without exception, highly venomous; a fact denied by Schlegel, who asserted that they are all harmless, which erroneous opinion is even very current in India. The fact, however, was lamentably proved by the recent death of a British naval officer from the bite of one of these reptiles, and various experiments instituted by Dr. Canter on different animals with their venom, shewed it to be exceedingly virulent. They prey chiefly upon fishes.

JULY 24th.—A stuffed specimen of a common fowl was exhibited, which had been sent from India, and on the comb of which had been engrafted the spur of one of its legs, the corneous portion of which had grown to a considerable length, in consequence of being placed nearer to the centre of circulation. Mr. Owen remarked upon the fact as possessing much interest in a physiological point of view, and stated that John Hunter had succeeded in similarly engrafting a human tooth upon the comb of a fowl, the theory of the attachment of which he took occasion to explain. Mr. Martin then described and named several new species of ophidian reptiles, which he severally designated *Coluber canteri*, a species from India, *Herpodryas paucitifer*, from Antigua, and *Vipera euphratica*, *Columaria? fasciata*, *Psammophus pulcher*, *Calamaria modesta*, and *Natrix inornata*, brought home by the conductors of the Euphrates Expedition.

AUG. 14.—The Rev. Dr. Bachman, of Philadelphia, exhibited an extensive assortment of North American Squirrels, of which he distinguished fifteen species, several of them further presenting a number of local varieties. The first, the well-known *Sciurus capistratus*, was stated to be extremely variable, a fact illustrated by a series of specimens; and it appeared that three distinct species had hitherto been confounded under the *S. cinereus* of systematists, for two of which were proposed the appellations *leucotis* and *carolinensis*. There were also three black species, distinguished by the names, *niger*, *audubonii*, *fuliginosus*; and the remainder consisted of the *S. nigrescens* of Bennet, *S. macrourus*, *californicus*, *subauratus* (described for the first time), *collei* (a notice of which would appear in the forthcoming account of Captain Beechey's voyage), *hudsonicus*, *laniginosus*, and *richardsonii*, the two last of which were also new. The general characters and habits of these ani

mals were severally treated of, which latter differed in some instances remarkably in species that were nearly allied; and the rev. doctor succeeded in elucidating what had hitherto been involved in much perplexity, the specific distinctions of an extensive group of animals, which could only have been successfully investigated in their native forests.—Professor Owen then concluded his notice of the anatomy of the Apteryx, by describing its osteology, the characters of which at once decided its relationship to the other struthious birds. Not any of the bones were permeated by air; and the sternum presented two posterior emarginations, and also two foramina, the position of which was peculiar, being above and scarcely to the interior of the emarginations.—A living specimen of the *Gymnotus electricus*, from the river Amazon, was next exhibited by its possessor, Mr. Porter; and most of the members present had the curiosity to endure the shock given by this animal, the intensity of which depended on the mode of handling or the excitement of the fish: its power had considerably diminished with decline of temperature, and was developed to the greatest extent in tepid water. Mr. Waterhouse then displayed a number of quadruped skins, procured in Van Dieman's Land, all of which were recognized; but the locality proved to be in some instances interesting, and in others was then ascertained for the first time.

SEPTEMBER 11th.—A beautiful small Antelope, allied to *Antelope pygmaea*, and obtained from eastern Africa, was first exhibited by Mr. Prince, on the part of Mr. Ogilby, who signified the intention of that gentleman to describe it on a future occasion, and bestow on it a specific name; the present course being adopted in consequence of the specimen having to be sent into the country. Col. Sykes then displayed to the meeting the skins of two interesting mammalia unknown in the collections of this country; first, that of the *Canis jubata*, a large and singularly beautiful animal, with a considerable mane, and which he conceived would prove to be the South American analogue of the Hyenas of the Old World; the second, that of the *Felis pardina* of Temminck, a handsome European Lynx from the Pyrenees, marked with elongated black spots or broken lines on a yellowish-grey ground-colour. He then made some remarks on the Thickbilled or Calandra Lark of Southern Europe, which he had recently enjoyed opportunities of observing in the vicinity of Cadiz, and greatly extolled its merits as a songster; he conceived this bird to be worthy of generic separation from the species of this country. Mr. Blyth next called attention to some specimens of the Common Crossbill which he had recently procured, and which tended to show that neither the red nor saffron-tinted garb of the males was indicative of any particular age, as commonly asserted. The general opinion was, that on casting its nestling plumage the male Crossbill always acquired the red colour, and the saffron-tinted dress at the second moult, and ever afterwards; the young once moulted exhibiting a brighter garb than older individuals. Mr. Blyth stated that this was by no means the case, for he

had known red individuals to acquire again the same colour, much brighter than before; he had also known them to moult from red to saffron, as stated in books; and now he exhibited two young males recently shot from a flock, both of which were exchanging their striated nestling plumage for saffron feathers, the change in one of them being nearly completed. He had also seen specimens, the new plumage of which was partly red and partly yellow; so that there was no regularity whatever respecting these colours. The same variation, he added, was also observable in the genus *Corythus*, less frequently in *Erythrorhiza*, and occasionally in *Linota*, and he exhibited a specimen of the Common Linnet shot during the height of the breeding season, when the crown and breast of this species are ordinarily bright crimson, which had these parts of the same saffron hue so common in the Crossbills. He concluded by observing, as a fact not generally known, that fertile females of the genus *Linota* not very unfrequently assumed a red crown and breast as in the male, a circumstance apt to escape observation, as such specimens are liable to be considered as of the opposite sex without further examination.

BOTANICAL SOCIETY.

SEPTEMBER 7th.—A donation of British and foreign plants, presented by the Botanical Society of Edinburgh, was announced by the Secretary, together with another donation of 5,500 specimens, including 420 species of British plants, from the collection of D. Cooper, Esq. the Curator of the Society, who exhibited some examples of *Polypogon littoralis* from near Woolwich. A paper from the Curator was then read "On a new principle of making fences, formed according to the laws of vegetable physiology," a plan first adopted by Mr. Breeze, of the Nursery, Brentwood, Essex, on the estate of Sir Thomas Neaves, Daynam Park, in that vicinity. It is, in fact, a natural living fence, and consists simply of growing and planting, for the purpose, trees or shoots of the same or allied species, and uniting them by means of the process of *grafting by approach*, or *inarching*. A fence formed on this principle possesses many advantages over the fence-work ordinarily employed, never requiring to be repaired, on account of living wood resisting the action of the wind and weather. It acquires strength every year by the deposition of new layers of wood, is much cheaper in first cost than the common fence or paling, &c. Mr. Cooper also noticed the variety of *Polygonum aviculare*, called by Hudson *P. marinum*, as being very plentiful a few weeks since in Kent and Essex, and considered that it fully merited a place in the recent floras of this country.

CRITICAL NOTICES OF NEW PUBLICATIONS.

Astronomy Simplified ; or, Distant Glimpses of the Celestial Bodies, described in familiar language, setting forth the Power and Goodness of the Creator through Astronomical Facts, by Frances Barbara Burton ; 8vo, London, 1838, pp. 138.

MISS BURTON'S object in composing this extraordinary group of planetary sketches, is, to exhibit such a compendious series in the celestial machinery, every where surrounding the earth, as may gradually unfold its magnificence to the inquiring mind ; and thus, to place a popular view of astronomical knowledge within reach of the intelligent of all classes, "feeling as she does, daily more and more, the heart-reviving joy attending the contemplation of the Creator's works."

These "distant glimpses" themselves form a beautiful and most condensed analysis of the facts which establish the inductions of Astronomy ; and, consequently, they stand high above any attempt at exhibiting their spirit and importance in a better or greater state of analytical concentration. Suffice it, then, to state our admiration of the experience and judgment displayed by Miss Burton, in the arrangement of her subjects, and in the dignified simplicity with which she popularizes her descriptions of the firmamental systems, and their stupendous magnificence. At the same time, and for the purpose of enabling our readers to devise an estimate of Miss B.'s aim and the extent of its accomplishment, we furnish them with two extracts, in which the exquisite didactic powers of this authoress appear in harmony with a fine aptitude to moral reflection.

Our first extract is taken from Miss Burton's "glimpse" of the planet we inhabit ; and, at page 34, we find her teaching that "the earth is demonstrated not to attain her perihelion point, by the annual retrogradation of one minute and two seconds of the ecliptic. Consequently her arrival at the perihelion point is found to retrograde in the proportion of 1 degree 48 seconds in a century, of a whole constellation in 1744 years, of a quarter of the ecliptic in 5,232 years, of half of it in 10,450 years, and of the entire circumference of the ecliptic in 20,931 years. From this systematical retardation in the Earth's arrival at her perihelion point, it therefore follows that 10,450 years hence it will be the 23rd degree from the equator of our present northern hemisphere, which shall pass beneath the vertical beams of that era's perihelion point. Then shall our present northern hemisphere (at that far distant period, the southern one of this planet) then shall it exhibit the phenomena now displaying in the

present southern one; phenomena immutably appertaining to the position, not construction, of the planet's southern hemisphere.

“In illustration of this impressive subject, we will remark that, through the same revolutionary precision, the identical 23rd degree of our present northern hemisphere, as above delineated, actually passed beneath the perihelion beams that vivified the Earth's planet 10,450 years back! And, moreover, with regard to the present southern hemisphere, that the same 23rd southern degree, annually reflecting the perihelion rays of the present age, actually received them 20,931 years ago! and, guided by a like unalterable precision, 20,931 years hence shall again pass beneath their unerring irradiation! The Almighty dispenser of all things ordaining the invariable embosomment of one half this planet, alternately, within the fertilization of a southern hemisphere; no doubt infinitely more regenerative than would be a northern one. Provisional care we thus every where find pervading celestial machinery, even in its minutest details! In every 20,931 years, therefore, the same periodic phenomena are repeated, from recurrence of the same causes! Behold here stupendous cycles of progressive changes! astounding in result, imperceptible in operation. Each gradation occupying 5,232 years, their opposite effects 10,450 years, and the entire accomplishment of their phenomena, twenty thousand nine hundred and thirty-one!

“It is calculated that the present state of earthly phenomena shall generally continue until the passage beneath the perihelion point of the $17\frac{1}{2}$ degree of southern declination; that is, during the period that the Earth's celestial crossing point retrogradeth along four complete signs, or during 6,977 years, whereof 4,670 years have expired. No considerable hemispheric changes from this perihelion revolution are consequently to be expected until about the year 4,719 of our christian era, when they will become very apparent. Referring to the past, the last grand hemispheric change is calculated to have taken place 5,814 years ago, or 4,002 years before the christian era; the very date of the Mosaic account of the creation, and exhibiting, in all probability, visible phenomena such as are described in the first chapter of Genesis. In due progression of time the middle southern degree passed beneath the perihelion rays about the year of the world 2258, producing probably such effect in that hemisphere as may be imagined from the Mosaic and other accounts of the deluge then taking place. Referring to the future, the next time the Earth's equator passes beneath the perihelion point it will be from south to north, in the year of the christian era 6,463, or 4,651 years hence; a period so remote that, without physical change, the very name of Britain will be forgotten! In the year 8,207 of our christian era, the Earth's (present) middle northern degree of declination will pass beneath the vertical perihelion rays, producing very visible effects on this, our actual northern hemisphere. Between that period and the year 15,184, this present northern—then the southern—hemisphere, with all its superb machinery of kingdoms, empires, and republics, will probably

be as completely covered with sea as is at present the actual one: that present southern hemisphere, which to the human race of that period shall have become the northern hemisphere of this planet. Thus, through the magnificent revolution attending the Earth's perihelion point, the Creator has ordained the gradual alternate regeneration of her two hemispheres, thereby maintaining, through 21,000 years after another, that vital principle of planetary reproductiveness constituting, throughout infinitude, the stamp of Omnipotence. And thus, by an unheeded, but unremitting operation, are the present fathomless abysses of ocean fructifying into the luxuriant valleys of far distant future ages, and its trackless deserts, into the majestic continents and fertile islands, of remote generations; destined sites of the splendid states and empires, irradiating the next hemispheric mutation. Hence the durability of this globe, as a planet. Hence, throughout cycles, incalculable by man, may the Earth hold on her course of fulness and gladness, in ceaseless harmony with the countless other glorious worlds of an Omniscient Creator."

Miss Burton represents NEBULÆ as groups or shoals, of divers forms and sizes, occupying regions of space so infinitely remote as not to be discernible, except through telescopes of very superior power, and then they appear in the fashion of light clouds or vapours; but many of them, when examined through the very strongest magnifiers hitherto known, exhibit one or two, or sometimes three, luminous bodies, apparently appertaining to such light clouds or vapours. The most important *Nebula* to human apprehension, she says, is the *Milky Way*, which comprises a multitude of these nebulous forms; and, after descanting on the multiplicity, diversity, and vastness of these wonderful bodies, she proceeds to delineate a classification of them, and concludes with an animated sketch on the "Regions of Nebulosity." From this we draw our second extract:—

"When we contemplate the regions of nebulosity among the multiplicity of objects either too vast or too minute for unassisted human perception, not the least wonderful are the particles of which they are composed. Although excessive rarity, or minuteness, places the component particles of nebulosity beyond any term efficiently expressive of smallness, yet each of them possesses a determinate bulk, and is allied, by definite angular construction, to a specific class. The countless varieties, both in form and substance, of these particles, exhibit a diversity in creative operation amounting to infinite; while the harmonious uniformity of its designs is equally apparent from the fact that, how much soever different species of nebulous particles vary in other particulars, yet all correspond in possessing affinity towards their own specific class. The classification of each particle may, therefore, be held as determined by its specific angular construction, and its rotatory action, by the modification either of the electric or magnetic effluvia, to which the polarity of that construction bears affinity. Here it may not be unappropriate to remark that the magnetic principle seems an agent more powerful in action, and wider in scope,

than the electric. The magnetic fluid appears constantly flowing along the Earth, and from the Earth towards the sun, in like oscillatory rotation, attending all the operations of nature; and the electric fluid appears correspondingly flowing from the Sun towards the Earth, and from the Earth towards the Sun, in like oscillatory rotation, either at direct or oblique angles, to the course of the magnetic fluid; that is, at angular directions towards it, of every magnitude, as determined by the position of the Earth towards the Sun, at any given moment. Hence the electric effluvia may be considered a grand operative medium of the Sun amongst the planets of his system; and the magnetic effluvia, an important portion of the all-pervading principle every where generated, and diffused in universal oscillatory rotation; but whose action upon the Earth's planet is determined by the influence of her two polar stars. Every planet, therefore, throughout every system, while propelled and upheld through the electric agency of its particular sun, may be presumed as connected with, or rather as intertwined amongst, the almighty mechanism of the universe, through the magnetic instrumentality of its polar stars. We, therefore, perceive that celestial bodies, so far from wandering in space unconnected or unsustained, are knit together, at every infinitesimal angle, by intersectional gaseous mediums, forming a mechanism more consolidated in construction, and precise in evolution, than can enter the imagination of mere human artificers. As in these instances minuteness of operation precludes unassisted human perception, so if we advert to an aggregate mass of nebulous particles, efficient to the development of a body of Jupiter's bulk—a body exceeding 90,000 miles in diameter—we shall find ourselves equally lost amidst immensity! But if, for an instant, we expand our faculties towards the consideration that every component particle of this enormous bulk possesses its appropriate affinity towards some definitively propelling modification or other, either of electric or magnetic polarity (according to the specific angular construction of each particle), we shall cease wondering at the rapidity of orbicular rotation maintained by bodies of like magnitude. If it be asked, whence originated the actual distribution of nebulous matter into suns, and their revolving planets—that is, what primeval organization developed this diversified universe of worlds—the question, as yet, is only answerable by conjectures. Some supposing the respective sun of each system, as primarily created—and whence their revolving planets were subsequently projected—some supposing the small globe of the earth first to have started into existence, and the sun afterwards, as an appendage—with various other hypotheses, some plausible to mundane blindness, but all, perhaps, equally fallacious, the subject, probably, lying beyond the present scale of man's perceptions. It was but yesterday that, as a race, optics demonstrated to him the universality of the vital principle alike invigorating the microscopic inhabitants of a drop of water and the telescopic wonders of nebula. Nature's volume is only unclasped before him; can the first page unravel its mysteries?

“The more we expand our ideas relative to the grandeur of creative operation, and its consequent universality, both as to extent and duration, the less we shall degrade it. It appears, therefore, more consonant both to recent discoveries in regions of nebulosity and to the all-pervading nature of Omnipotence, to presume that, so far from any single planet having been formed before all others, or even any single sun having been primarily irradiated, the organization of celestial bodies may have been effected by the universality of that rotatory energy constituting their sustaining agency. In accordance with the universality of this principle, myriad affluvia may rationally be supposed, rotatorily exhaling, in every direction, from regions of nebulosity into infinitesimals, which may equally be presumed rotatorily aggregating, in their turn, into diversified classes of nebulous particles, the multitude of the classes corresponding with the polaric activity inherent in their combinations; the reorganization produced thereby concurring with the general laws of the universe, which every where appear acting by the rotatory disorganization and reorganization of constituent parts. Here we must observe that, however impalpable to unassisted human perception a single nebulous particle may appear, yet that the disorganization and consequent elective recombination of various proportions of affluvial properties, are necessary to the formation of one such nebulous particle; since, such is the complexity, as well as the minuteness of these very infinitesimals, that the properties of each single one, may be analyzed into proportions as essentially diversified among themselves, as may be the component parts of one of our elixirs. The intensity with which this complexity must be amalgamated, forms another striking feature in the agency of these infinitesimals; and probably the equipoise between the primeval tenacity of organic amalgamation, and the activity of polaric affinities, forms a keystone to most of nature’s phenomena. Again let us repeat it, nature’s laws ever act analogously; and the more elaborate the condensation of the creative and regenerative properties within those infinitesimals, the more stupendous must be the reaction of their development. The intensity, therefore, of this amalgamation—an intensity amounting to infinite, and apparently marked with the spiral delineation of all nature’s organizations—this intensity of amalgamation may be assumed of vital instrumentality in the diffusion of solar and planetary rotatory influences, whether that diffusion be of a creative, an upholding, or a regenerative nature. Infinity of minuteness lies as far beyond comprehension as infinity of greatness; but our conceptions must aim at conforming themselves, in some degree, to the marvels of both, in treating of the regions of nebulosity—those emporiums of nature’s alchemy, those focusses of her operations—every where scattered round, as they are, with her accustomed profusion; emporiums whence issue the creative, the sustaining, the regenerative affluxes, in combinations so minute, so intricate, that eternity only might suffice for developing the wonders of a single atom! These, and such as these, form our present contemplations. Labora-

tories of grandeur, unfathomable even by thought ; and effluvia veiling themselves from computation through infinity of rarefaction.

“ Human faculties gladly shelter themselves, after such contemplations, within objects of comparative familiarity ; these they find in nebulous particles. A universe of affluxes would elude unassisted human perception ; but the gradual combination of a detached portion into nebulous particles, through rotatory and polaric action, brings that portion palpably before the senses. We may, therefore, rationally presume these affluvia, thus primevally exhaled from the regions of nebulosity, to have aggregated, during a sequence of many ages, into infinitesimals of numberless diversified polarities and affinities ; and may equally assume the aggregation of such infinitesimals into nebulous particles to have taken place, through like rotatory and polaric action, in the course of periods of commensurate immensity, the very homogeneousness of the original materials displaying the harmoniousness of creative design, as developed in the sequel of farther myriads of ages. Here conjecture seems terminated. The observation of nearly a century, with highly-wrought glasses, offers the conclusion that each particle throughout every nebula, from impulses analogous to the foregoing—that is, by like rotatory action, and from like decomposing and recomposing polaric affinities—that each particle classes itself amidst those of relative rarity and polarity, although on a scale of proportionate grandeur. For here we must remember that it is a nebula we are now contemplating, an awfully stupendous nebula ; wherein the denser particles are aggregating, not into fresh atoms, but into august centres, or suns of future systems ; and wherein the particles of more rarefied tenuity, or external position, are systematically classing themselves into globes proportional to their respective species or polarities, until assemblages of orbs present themselves of the diversified magnitudes and aspects of those composing our solar system. Nor is this all, since, in process of time—that is, in the course of myriad ages—the nebulosity of one entire nebula concentrates into the illumination of its own multitudinous clusters of suns, each sun, throughout his own cluster, having become progressively encircled by his own express system of planets, with their moons, and a cometary machinery crowning the whole. The inherent, all-propelling rotatory principle appertaining to each particle of every individual globe, analogously developing itself, not merely in propelling action towards each distinct planet, but towards those very suns themselves. Every sun, throughout each cluster, himself rotatorily propelled and rotatorily propelling others, thus splendidly illustrating the analogy between the revolutions of his own dependent planets around his own immediate orb, and those on the more magnificent scale, whereby his own effulgent self, and the other suns of his cluster, revolve around that cluster's common centre. Finally, this primordial principle, crowning itself with the majesty of infinitude, as the countless cluster of suns pervading space, marshalled within their appropriate strata of

suns, revolve around the centre of the universe during cycles, the myriads of whose enumeration outstretches calculation. But whence originated this mysterious agency, whence generated, what is the essence of the rotatory universality, may not be for human apprehension. Every where its vitality is felt, is beheld; even in our minutest organic functions, even amidst the decompositions of death: but its nature lies impervious to sense. Man can speak only of its mechanical processes. None can impel, none can elude, none can restrain it; and every where surrounding, and actuating, and sustaining, it bears the stamp of Omniscience, which shrouds creative might from mortal investigation. The researches of science have thus opened the sublimest of all subjects to human contemplation—namely, a series of solar systems unceasingly propelling, by the divine energy, from the original matter of physical nature. Astronomical observations will henceforward be directed, with reference to the laws of creation itself, towards some of the facts actually in progressive operation, amidst the regions of nebulosity; and the resplendent beneficence of the Creator will be more and more manifested, as the universality of his operations becomes more and more developed. Some thousands of years hence, the expansion of science may hazard calculations on the consolidation of a starry stratum, on premises as precise as are those now employed on the growth of a cedar tree, both equally the workmanship and under the superintendence of the same power; since the development of a petal or of a planet is alike dependent upon and demonstrative of omnipotence. We have here approached boundaries impervious to the ignorance of former ages, and at the infinity of whose remoteness from our solar system man's faculties stand appalled; yet so far from being those of limitation, demonstrated by the increasing excellence of magnifiers, as leading still onwards and onwards, amidst fresh regions of infinitude, and fresh displays of creative vitality. Displays, not merely of sun upon sun, in stupendous rivalry, but embracing regions the smallest conception of whose immensity demands the entire abstraction of human intellect. Regions wherein the immutability of God reveals itself in an eternity of primordial diffusion; wherein the faintest object discernible by man comprises strata of suns, and the minutest operation the formation of worlds!"

OUTLINES OF PERIODICAL LITERATURE,

RELATING TO THE NATURAL SCIENCES AND PHILOSOPHY.

(Continued from Vol. viii. p. 349, of this Journal).

Annals of Natural History ; or Magazine of Zoology, Botany, and Geology ; conducted by Sir W. Jardine, Bart. P. J. Selby, Esq. Dr. Johnston, Sir W. J. Hooker, and Richard Taylor, F.L.S. 8vo, London, 1838, with graphic illustrations.

V.—First in this number, stands an article of Professor Henslow's, intitled *Florula Keelingensis*, or an account of the native plants of the Keeling Islands. In this list the natural system of arrangement is preferred, and twenty-one species of vegetables are succinctly described. These are, *Paritium tiliaceum*, *Triumfetta procumbens*, *Pemphis acidula*, *Portulaca oleracea*, *Guilandina bonduc*, *Acacia farnesiana*, *Urera quadrichandiana*, *Achyranthes argentea*, *Boerhavia diffusa*, *Scævola Koenigii*, *Guettarda speciosa*, *Cordia orientalis*, *Tournefortia argentea*, *Dicliptera buarmani*, *Ochrosia parviflora*, *Panicum sanguinale*, *Stenotraphum lepturoide*, *Lepturus repens*, *Cocos nucifera*, *Hypnum rufescens*, and *Polyporus lucidus*, forming altogether an interesting set of plants, whose seeds must be provided, in a very eminent degree, with the means of resisting the influence of sea-water. 2. Fishes new to Ireland, to the number of six, are zoologically delineated by Mr. Thompson: these are, *Trigla blochii*, the red gurnard; *Mugil chelo*, the thick-lipped gray mullet; *Gobius gracilis*, the slender goby; *Salmo eriox*, the bull-trout; *Gadus callarias*, the dorse; and *G. minutus*, the poor. As an ichthyological communication, this of Mr. T.'s is important and acceptable. 3. Dr. Walker Arnott considers the Linnæan genus *Rhizophora* as a group of the order *Rhizophoreæ*; and, as such, he makes it the subject of a clear and ample definition. He then gives a synoptical view of the genera and species of the whole group, with their phytographical distinctions: thus, *Rhizophora mangle*, *R. mucronata*, and *R. conjugata*; *Ceriops candolliana*, & *C. roxburghiana*; *Kandelia rheedeii*; *Bruguiera gymnorrhiza*, *B. cylindrica*, *B. rheedeii*, *B. australis*, *B. eriopetala*, *B. cariophylloides*, *B. malabarica*, *B. parviflora*, and *B. sexangula*. Dr. Arnott subjoins an admirable *Clavis Analytica* of the better known species of this group of vegetables; he then adds descriptive remarks on the *Carallia ceylanica*, *C. corymbosa*, *C. sinensis*, and *C. integerrima*; and finally, for definite considerations, he proposes the establishment of a new genus, the *Dryptopetalum coriaceum*, which he characterizes. This valuable contribution evinces the doctor's intimate acquaintance with the niceties of botanical literature and philosophy. 4 Mr. C. C. Babington produces farther reasons in support of his observations on the *Habenaria bifolia* and *H. chlorantha*, originally published in the Linnæan Transactions; and he repeats their characteristic differences, for the sake of those botanists who do not see

that expensive work. 5. The specimen of the Botany of the Islands of New Zealand is continued by Mr. Allan Cunningham; and, in this contribution, he describes *Euphorbia glauca*: *Mida salicifolia*, *M. eucalyptoides*, and *M. myrtifolia*; *Pimelea guidia*, *P. pibosa*, *P. virgata*, *P. prostrata*, *P. arenaria*, and *P. urvilliana*; *Persoonia tora*; *Knightia excelsa*; *Laurus tarairi*, *L. tawa*, and *L. calicaris*; *Laurelia novæ zealandiæ*, of which remarkable plant, the tree bearing the female fructification has not been discovered in its native country. 6. Farther descriptions of British *Chalcidites* are given by Mr. Walker; as the *Cirrospilus lynceus*, with eight varieties; *C. crino*, with one variety, *C. pacuvins*, with one variety; *C. singa*, *C. phorbas*, *C. arsarnes*, *C. minæus*, *C. abron*, with four varieties; *C. isæa*, with eight varieties; and *C. medidas*, with ten varieties, all of which, and most of the others, are female. 7. Mr. J. E. Gray's catalogue of the slender-tongued Saurians, in an additional article, includes six families: *Lonuridæ*, *Circosauridæ*, *Chirocolidæ*, *Chamæosauridæ*, *Helodermidæ*, and *Monitoridæ*, wherein several new genera and species are methodically distinguished. 8. As an illustration of Indian Botany, Drs. Wight and Arnott describe the *Solanum giganteum* phytologically, and exhibit its calyx, pistil, corolla, and berries, on a plate, with three distinct figures. 9. Mr. Gould's observations on the raptorial order of Birds from Australia, stand for a "Proceeding" of the Zoological Society: they constitute an original, perspicuous, and important contribution to the ornithological philosophy. 10. At the Botanical Society of Edinburgh, Dr. Graham read observations on Plants collected in Scotland, in 1837, among which were *Arenaria norvegica*, *Cerastium latifolium*, *Lychnis divica*, *Agrostis canina*, *Fedia mixta*, *Erythræa littoralis*, *Lathyrus maritimus*, with the habitats of each subjoined. An account of the most celebrated gardens of antiquity was submitted to the society by Mr. Falconer, with observations on the hortulan taste they exhibit. In a paper, by Mr. Macauley, his aim was to prove that Flowers were esteemed by the ancients as objects of taste, and cultivated as a source of amusement. And a communication from Col. Brown, contained a sketch of the Botany of the neighbourhood of the Lake of Thun, in Switzerland, chiefly in reference to the geographical distribution and altitude of the plants, specifically enumerated. 11. A communication from Col. Sykes was read at the Royal Asiatic Society, on the vegetable and other productions of the Deccan; and the paper was accompanied with an extensive herbarium and a great variety of specimens: the essayist had in view, to show the immense extent and importance of the natural resources, in the eastern continent and adjacent peninsula, which yet remained to be made subservient to the arts and manufactures of this country. 12. On the anniversary of the "Immortal Swede's" birth-day, notices were read at the Linnæan Society, on the lives and characters of several Fellows lately deceased: these sketches will do excellent service to biographers, in future times. 13. For miscellanies, you have descriptions of a third living species of the Crinoidea, forming the type of the new genus *Holopus*; of the *Sieboldia*, or gigantic Japanese Salamander, of the *Zootoca vivipara*, and of the *Voluta norrisii*, a new species described by Mr. J. E. Gray according to its distinctive characters. The Annals is illustrated with three plates, comprising many figures whereby the organization of the *Stenotaphrum lepturoide*, *Urena gaudichandiana*, and *Solanum giganteum*, are faithfully represented.

VI.—This number brings the “Annals of Natural History” to the conclusion of their first volume, which, as we judge, has been executed in a very efficient and instructive manner. 1. Mr. Jenyns introduces the Annals for August with remarks on the British Shrews, including the distinguishing characters of two species previously confounded: his synoptical view of these little animals includes, as British, the *Sorex rusticus*, or common Shrew; *S. tetragonurus*, the square-tailed Shrew; *S. fodiens*, the water Shrew; and *S. ciliatus*, the ciliated Shrew, of this writer’s nomenclature. 2. Notes of Sir W. J. Hooker’s, on the “Iatun condenado”—*Lycopodium catharticum*—an efficacious remedy for the leprosy among the Indians of Colombia, deserve well the attention of practical physicians. The professor characterizes the species methodically, and illustrates its structure on a beautifully coloured plate. 3. Dr. Johnston’s descriptions of some Entozoa embrace the characteristics of two species, the Phylline *hyppoglossi* and the Fasciola *anguilla*, both of which are distinctly represented by lithographic figures. 4. An accurate figure, finely executed and coloured, stands as the illustration of Sir W. J. Hooker’s note on the *Erythræa diffusa*; to which some remarks on the genus, by Dr. Griesbach, are appended. 5. Dr. Louis Agassiz’ elaborate monograph, on the Echinodermata, is continued in a translation: with his usual sagacity and precision, he discriminates forty-one species in the present article. 6. His descriptions of British Chalcidites are continued by Mr. Walker; and these are, *Cirrospilus lycophron*, with one variety; *C. coronis*, with three varieties; *C. lycomedes*, with seven varieties; *C. orelia*, *C. chabrias*, with one variety; *C. clinias*, with one variety; *C. endora*, with nine varieties; *C. procles*, *C. abastor*, *C. aratus*, with five varieties, and *C. lagus*, with eight varieties. 7. Here you have an addition to Mr. A. Cunningham’s specimen of the New Zealand botany, comprising *Polygonum australe*, *P. adpressum*, *P. complexum*, and *P. prostratum*; *Rumex crispus* and *R. brownianus*; *Chenopodium triandrum*, *C. botrys*, *C. glaucum*, *C. maritimum*, and *C. fruticosum*; *Salicornia indica*; *Alternanthera denticulata*; *Mniarum biflorum*; *Plantago major* and *P. varia*; *Anagallis arvensis*; *Samolus littoralis*; *Veronica speciosa*, *V. salicifolia*, *V. ligustrifolia*, *V. macrocarpa*, *V. angustifolia*, *V. parviflora*, *V. elliptica*, *V. cataractæ*, *V. diosmifolia*, and *V. calycina*; *Gratiola sexdentata*; *Euphrasia cuneata*; *Rhabdanthus solandri*; *Solanum laciniatum*; *Myoporum letum* and *M. pubescens*; *Avicennia tomentosa*; *Vitex littoralis*; *Micromeria cunninghamii*; *Anchusa spathulata*; and *Myosotis fosteri*. 8. Under the head of information respecting botanical travellers, is an account of Mr. Gardner’s proceedings at Pernambuco, wherein he describes, at considerable length, the general appearance of the country and nature of the vegetation in such parts as he visited: this article abounds with curious and valuable information. 9. Mr. Rigg’s experimental inquiry into the influence of nitrogen on the growth of plants, occupies the place of “a proceeding” of the Royal Society. At the Linnean Society were read, Mr. Hogg’s observations on the *Spongilla fluviatilis*; Mr. Blackwall’s paper on the number and structure of the mammulæ employed by spiders in the process of spinning; Mr. Schomburgk’s description of a new species of *Catleya*, a splendid orchideous epiphyte, remarkable for the beauty and fragrance of its flowers; and Mr. Bentham’s observations on some genera of plants connected with the Flora of Guiana; and these are the *Symplocos*, *Anthodiscus*, and *Seguieria*, whose five species—*parviflora*, *coriacea*, *longifolia*,

floribunda, and *macrophylla*—he briefly characterizes. An abstract of the Botanical Society's proceedings exhibits a variety of interesting notices. 10. For miscellanies, you find sketches of two recent species of *Trigonia*, the *margaritacea* and *lamarckii*; notes on the sexes of Limpets; and an account of the habits of *Patella pellucidæ*, its habitats and food.

VII.—Mr. MacLeay describes some new forms of Arachnida, four of which at least he regards as very singular, and are selected as such out of a great variety of new forms in his cabinet. The forms here delineated are, the Nops *guanabacoæ*, *Hypoplatea celer*, *Deinopis lamia*, *Myrmarachne metanocephala*, and *Otiotrops walckenaeri*; with five illustrative coloured figures. Mr. M.'s aim is, to show that a true spider may have a distinct head; that spiders may have an articulated thorax and abdomen; that spiders may have only two eyes; that those which have eight may have them disposed in systems very different from any of the systems hitherto described; and that, although spiders in general have their labial palpi like feet, some species, on the other hand, may have their true feet like palpi, and their labial palpi without ungues. For the second article, you find a continuation of Mr. Thompson's observations on Fishes new to Ireland: these are, *Mostella glauca*, the mackerel midge; *Phycis furcatus*, the common fork-beard; *Platessa pola*, the pole; *Solea lingula*, the red-backed sole; *S. variegata*; *Anguilla latirostris*, the broad-nosed eel; *Anmodytes tobianus*, the wide-mouthed sand-eel; *Syngnathus typhle*, the deep-nosed pipe-fish; *S. ophidion*, the snake pipe-fish; *Hippocampus brevirostris*, the sea-horse; *Petromyzon planeri*, the fringed-lipped lamprey; and *Gobius gracilis*, in an "addendum" to a former contribution. Mr. Ball's botanical notes of a tour in Ireland, with notices of some new British plants, is a very interesting and valuable communication. In Dr. Walker's account of the genus *Langsdorfia*, two species—the *L. jancirensis* and *L. indica*—are characterized. Dr. Parnell's description of a new species of British fish, *Motella cimbria*, the four-bearded rockling, is illustrated with a finely executed lithographic figure. In an additional note on the British shrews, Mr. Jenyns gives the distinguishing characters of *Sorex tetragonurus*, the square-tailed shrew, and *S. castaneus*, the chestnut shrew; and he adds a remark on his alleged error of considering the British water shrew as distinct from the *Sorex fodiens* of the continent. Another portion of Mr. Allan Cunningham's specimen of the botany of the New Zealand islands, includes a phytology of *Calystegia sepium* and *C. soldanella*, *Ipomæa pendula*, *Dichondra repens*, *Gentiana saxosa* and *G. montana*, *Sebæa gracilis*, *Geniostoma ligustrifolium*, *Parsonsia heterophylla*, *Olea apetala*, *Achras costata*, *Myrsine urvillei* and *M. divaricata*, *Cyathodis acerosa*, *Leucopogon fasciculatus*, and *L. fraseri*, *Pentachondra pumila*, *Epacris pauciflora*, *Dracophyllum latifolium*, *D. longifolium*, *D. rosmarinifolium*, and *D. urvillianum*, *Gualtheria antipoda*, *G. rupestris* and *G. fluviatilis*, *Wahlenbergia gracilis*, *Lobelia alata*, *L. anpulata*, *L. littoralis*, *L. submersa* and *L. physaloides*, *Stylidium spathulatum*, *Fostera sedifolia*, *Goodenovia repens*, and *Scævola novæ zeelandiæ*: the presence of barbated stipuliform appendages at the axillæ, as also of the bilocular fruit, has induced Mr. C. to place this plant with the *Goodenoviæ* rather than with the *Euphorbiacæ*: his "specimen" has the curious feature of exhibiting the native designations of the plants and their positions. Seventy-two articles are noted in a continuation of Mr. Eyton's attempt to ascertain the Fauna of Shropshire and North Wales; and this brings you to

the chapter of information respecting botanical travellers, which communicates a series of most important particulars concerning M. Schimper's Abyssinian journey. There are three "bibliographical notices" in this number of the Annals, and then come the "proceedings of learned societies." At the 'geological,' Mr. Owen read a description of Viscount Cole's specimen of *Plesiosaurus macrocephalus*: at the Edinburgh 'royal,' Sir Charles Bell read a comparison of the nerves of the spine with those of the encephalon, and Dr. Macdonald made some verbal observations on the osseous structure of fishes: at the Irish Academy a paper by Mr. Thompson was read on the Irish hare and its peculiarities; and at the "zoological," a short communication upon Trogon *resplendens*, the long-tailed trogon, was made by the Prince of Musignano; a drawing of a new species of Tetrapturus was exhibited by Mr. Gray, who proposed the *herschelii* for its specific name; Mr. Martin characterized a new bat, the *Rhinolophus landeri*, and produced a specimen; he also communicated a descriptive notice on a new species of hedgehog, and proposed *Erinaceus concolor* for its distinctive appellation; and the characters of *Macropus bennetti*, were pointed out by Mr. Waterhouse, and those also of *Mus subspinosus*, a new species of Mouse: Mr. Gray described a very singular form among the Caprimulgidæ or goatsuckers, for which he selected the term *Amblypterus* to be the generic designation; and, by the same naturalist, the characters of *Ibis strictipennis*, *Platalea regia* and *P. flavipes*, were briefly enumerated: here the substance of all these excellent contributions to natural history are given succinctly in descriptive outlines. For miscellanies are a note on Dresing's helminthology, Mr. Smith's remarks on the nest and eggs of the water-rail, Mr. Gray on the walking of the seal, and a notice of Corda's anatomy of *Hydra fusca*, the brown fresh-water polypus: then, as usual, the Septembrarian Annals close with meteorological observations and tables.

The London and Edinburgh Philosophical Magazine and Journal of Science; conducted by Sir David Brewster, F.R.S. Richard Taylor, F.G.S. and Richard Phillips, F.R.S. 8vo, London, 1838.

JULY, *Supplementary No.*—This has, for the first article, Professor Forbes' researches on Heat, in a second series; and, in this, he treats on the use of the thermo-multiplier; the polarization of heat by tourmaline; the laws of the polarization of heat by refraction, and by reflection; and on the circular polarization of heat. Professor Johnston, in prosecuting his investigation of the composition of certain mineral substances of organic origin, furnishes an analytical exposition of the Retinæ Asphalt, its resin and the salts of retinic acid—the retinates of silver, lead, and lime. As proceedings of the Geological Society, you have Mr. Austen's paper on the geology of the south-east coast of Devonshire; Mr. Weaver's, on the geological relations of North Devon; Dr. Bell's geological notes on Mazunderan; Mr. Burr's on the geology of the line of the proposed Birmingham and Gloucester Railway; Mr. Morris' on the coast section from White-cliff Lodge, near Ramsgate, to the cliffs in Pegwell Bay; Sir J. Herschel's on the theory of volcanic phenomena; Mr. Bollaert's on the insulated masses of silver found in the

mines of Huantaxaya ; Mr. Clarke's on the peat-bogs and submarine forests of Bourne Mouth ; Mr. Hamilton's on the geology of Asia Minor ; Mr. Strickland's on some dikes of calcareous grit in Ross-shire ; Mr. Darwin's on the connexion of certain volcanic phenomena, and on the formation of mountain-chains and volcanos, as the effects of continental elevations ; and Professor Owen's on the dislocation of the tail, at a certain point, in the skeletons of many Ichthyosauri. At a meeting of the Zoological Society, Mr. Martin read observations on the Proboscis Monkey ; and Mr. Waterhouse directed attention to several small quadrupeds, belonging to the genera *Phasogale* and *Mus*, which he considered to be undescribed. Mr. Ogilby noticed the generic and specific characters of two species of his new genus *Kemas* ; Mr. Owen submitted remarks on the cranium of the Orang Outang, exhibiting a transitional state of dentition ; and he then offered some observations on a preparation of foetal Kangaroo, with its accompanying uterine membranes. With intelligence, and miscellaneous articles relating to the tartaric and paratartaric acids, to the action of fermentation on a mixture of oxygen and hydrogen gases, and to the action of sulphate of ammonia upon glass, the Supplement to volume twelfth is concluded.

JULY ushers in a new volume, with the plan of education for students in civil engineering and mining, in the University of Durham ; the new course of study there established is such as to form, not merely a school of civil engineers, but also a school of miners, wherein persons likely to be, through life, engaged either in excavating the mineral wealth with which the country abounds, or in converting the raw material into an article of commerce, may obtain such information on these various subjects as may be required. Mr. Potter comes next, with remarks on the radii and distance of the primary and secondary rainbows, as found by observation, and on a comparison of their values with those given by theory ; and he is followed by Col. Emmett, with meteorological observations taken at St. George's, Bermuda, in the latter half of 1837. Dr. Bird proposes, in another section of his experimental researches on the nature and properties of free and combined albumen, chiefly in relation to carbonic acid and electric currents, to detail some facts which tend to support his previously expressed remark—that these investigations would serve to point out the presence of albumen in certain animal fluids in which it was unsuspected, and thus reveal some new combinations of this important product of organization. Two articles are furnished by Professor Johnston, on the elastic bitumen of Derbyshire as a mineral substance having an organic origin, and on the separation of oxalic from other organic acids ; and, after these papers, comes one by Dr. Hare, on the re-action of the essential oils with sulphurous acid as evolved in union with æther in the process of ætherification or otherwise. Mr. Holtzapffel explains a scale of geometrical equivalents for engineering and other purposes, adding illustrative figures ; and this article is followed by Mr. Laming's doctrines on the primary forces of electricity, in continuation. Mr. Binks' second communication on some of the phenomena and laws of action of voltaic electricity, and on the construction of voltaic batteries, embraces three sections, intitled subjects of inquiry, the principle of investigation, and the method of investigation with preliminary experiments. For intelligence and miscellanies, you have a record of the circumstances attendant on the festival in honour of Sir John F. W. Herschel, and in commemo-

ration of his return from Southern Africa, after having executed a minute astronomical survey of the southern hemisphere; a notice of a French memoir on the action of light on solution of cyanogen; Mr. Walter's process for preparing bichromate of perchloride of chromium; and meteorological observations and tables.

AUGUST gives you, as a beginning, Mr. Ivory's problem on the conditions of equilibrium of a homogeneous planet in a fluid state; and Mr. Lubbock's theorem on a property of the conic sections. Seven figures on a plate illustrate Mr. Waldie's experimental researches on combustion and flame, which he conducts on a new method of investigation; and Professor Forbes' researches on heat embrace discussions on the unequally polarizable nature of different kinds of heat; on the depolarization and the refrangibility of heat, with figures in illustration. Dr. Apjohn details the means he employed for determining the nature of a new compound, consisting of iodide of potassium, iodine, and the essential oil of cinnamon, originating in an unchemical medical prescription. In his researches on the composition of coal, Mr. Richardson subjected four different kinds from six different fields—the splint, cannel, cherry, and caking—to the test of analytical experiment: here the results are exhibited. Mr. Griffin's arithmetical analysis of mixed salts of potassium and sodium, precedes the second part of Mr. Binks' second communication on voltaic electricity and voltaic batteries, and then you arrive at the proceedings of the Royal Society. Under this head stand three sketches; of an account, by Mr. Thomson, of a line of levels carried across northern Syria, from the Mediterranean Sea to the river Euphrates, with Mr. Ainsworth's geological and botanical notes; of Professor Faraday's supplementary note to the eleventh series of his experimental researches in electricity; and of Mr. Ivory's theory of astronomical refractions, which is unfolded in considerable detail. The miscellanies include Mr. Donné's discovery of the cause of circulation in plants; and, of this, the Chara, or *Stonewort*, is a remarkable example; of Mr. Boussingault's investigations to ascertain whether plants absorb the azote of the atmosphere; of Dr. Rees' paper on the proportion of animal and earthy matter in human bones; and of Professor Kame's formulæ on the ammoniacal and other basic compounds of the copper and silver families. Then, as usual, the meteorological observations and tables prepare you to welcome the arrival of

SEPTEMBER.—For its first article, this month has Professor Schœmbein's discussion of M. Fechner's views of the theory of Galvanism, with reference particularly to a circuit including two electrolytes, and to the relations of inactive iron; and for the next you have Mr. Binks' second communication on the phenomena and laws of voltaic electricity, and on the construction of voltaic batteries. Professor Forbes then treats of the refrangibility of heat, as the third series of his researches on heat, and these are illustrated with two plates. A medical paper stands next in order: it is from the pen of Mr. Gulliver, and consists of experimental observations on the frequent presence, and on the effects of, purulent matter in the blood, in diseases attended by inflammation and suppuration. He thinks his experiments will render it probable that suppuration is a sort of proximate analysis of the blood. Instructions for the qualitative analysis of soluble salts, are furnished by Mr. Griffin, in tables of precipitants for metals and for acids, with supplementary tests, and an easy method of applying sulphuretted hydrogen

gas as a test. M. Fechner then offers a memoir in justification of the contact theory of galvanism. Mr. Graves submits a new and general solution of cubic equations; and Professor Graham adduces a note on the constitution of salts. At the Royal Society, remarks on the theory of the dispersion of light as connected with polarization, were read by Professor Powell; as was a communication of Mr. Rigg's, forming an experimental inquiry into the influence of nitrogen on the growth of plants; and a brief notice of Mr. Bell's paper on rotatory motion, stand for proceedings of that illustrious institution. These are followed by abstracts of Mr. Bowman's notes on a small patch of Silurian rocks on the west of Abergell; Mr. Sowerby's list of fossils, including the species found in the Ludlow rocks; Mr. Malcolmson's notice, on the occurrence of wealden strata near Elgin, on the remains of fishes in the old red sandstone of that neighbourhood, and on raised beaches along the adjacent coast; Mr. Austen's remarks on the origin of the limestones of Devonshire; Dr. Black's description of the fossil stem of a tree recently discovered near Bolton-le-Moor; Mr. Williamson's communication on the distribution of organic remains in part of the oolitic series on the Yorkshire coast; and Mr. Smee's paper on the state in which animal matter is usually found in fossils, appear as proceedings of the Geological Society. Under the section for intelligence and miscellanies, you find Professor Airy's correction of errors in the nomenclature of certain stars in Groombridge's catalogue; M. Kuhlman's remarks and facts on the chemical re-actions of water; M. Peligot's analytical observations on the sugars, and a note on succeterin; and, with the usual meteorological tables, the *September* completes its valuable contributions to philosophy and the sciences.

The Phrenological Journal and Magazine of Moral Science; 8vo, London and Edinburgh, 1838.

No. LVII.—Volume eleventh of the journal is completed by this quarter's publication, which comprises eight miscellaneous papers, eight articles of cases and facts, seven analytical or critical reviews, notes on opinions, short communications and intelligence—forming, altogether, a comprehensive and instructive miscellany, abundantly well calculated to promote the views of unprejudiced inquirers, whose object is to ascertain and diffuse the principles of a true mental philosophy. First, as the leading communication, stand Dr. Combe's remarks on Dr. Pritchard's third attack on Phrenology, in his treatise on insanity. This article of Dr. C.'s constitutes a most beautiful and admirable example of candid, philosophical discussion; and, with the greatest ease imaginable, he convicts Dr. P. of an inveterate unfairness, as amazing as it is lamentable, the result of a prejudice little less culpable than dishonesty. Mr. Cargill comes next, with an excellent inductive sketch founded on facts concerning the organs of Inhabitiveness and Concentrativeness, with an examination of the opinions regarding the functions of that part of the brain which corresponds to the space marked No. iii. on the phrenological busts. After this, stand Mr. Hancock's remarks on the function of the organ called Concentrativeness, with an amusingly edifying and candid note by the editor, who animadverts freely, in the next article, on

the opinions of phrenologists touching the function of the organ of Wit, concerning which a letter of Mr. Rumball's follows in course. For a sixth communication, you have a prominent and faithful representation of the fruits of the hostile misrepresentations of Phrenology, made to students of medicine by their teachers, from the pen of a Bath physician. This paper shows very forcibly that a high-talented and well-educated gentleman, who would scorn to assert that black is white, could, nevertheless, be so infatuated by prejudice as to denounce that for false what he himself did not know to be untrue. You then come to a spirited exposure of a set of stupid misconceptions and silly arguments against the new philosophy of mind, as they have been repeated with the loathsome staleness of superannuation, in a recent number of the *Dublin Journal of Medical Science*. Last of the miscellanies, is Mr. Knight's cases illustrative of the hereditary instinctive propensities of animals. For cases and facts, an ingeniously-contrived exercise for the skill of young phrenologists; two interesting letters of Mr. Combe's, on a case of divided consciousness; Mr. Hodgson's case of enlargement of the organs of Locality, and of pain in those of Form and Size, in a landscape painter; two notes on the connection of insanity with inequality of cerebral development, on the application of Phrenology in the management of insane persons; the phrenological development of Talleyrand; further explanations of Mr. Bedford's case; and Mr. Combe's facts in exposition of the function of that portion of the brain which has been regarded as the organ of the faculty that perceives "the sublime," are concisely delineated. Passing the review department, which is smart and tenny, you arrive at a correspondent's opinion concerning phrenology and materialism, and the editor's conceptions of the signification properly to be attached to the words *mind*, *soul*, and *materialism*. The short communications merit a long study: they refer to the busts of Queen Victoria, Professor Turner, Charles Rossi, and John Reeve, as exhibited at the Royal Academy; to the cast of Jeremy Bentham, wherein the organ of Love of Approbation is enormous; to the musical faculties and their manifestations; and to a uniform penny-postage. As intelligence, are statements and information relative to numerous phrenological lectures and societies, which appear to be greatly on the increase, and in a state of highly encouraging prosperity.

The Magazine of Natural History, and Journal of Zoology, Botany, Mineralogy, Geology, and Meteorology, conducted by Edward Charlesworth, F.G.S. 8vo, London, 1838.

No. XIX, JULY, 1838.—Mr. Blyth furnishes a leading article for this number, with his analytic descriptions of birds composing the order *Insectores Heterogenes*; and, on this occasion, he considers the zoology of the *Cylindrirostris*, a systematic name proposed by him for the family of rollers, bee-eaters, and kingfishers, and of the *Angulirostris*, as he wishes the family of todies and jacamars to be denominated. In an article on the naturalization of *Dreissena polymorpha*, in Great Britain, from the pen of Mr. Strickland, se-

veral interesting facts connected with the history of this mollusc are recorded. Next in course there comes an elegant and entertaining sketch of Mr. Macauley's, on the flower-gardens of the ancients; this is followed by Dr. Weissenborn's elaborate doctrine on spontaneous generation; and then Mr. Couch advances some observations, with two figures, of *Amphioxus lanceolatus*, the lancelet, a singular little fish, with which the acquaintance of naturalists is very limited. After the reviews, there are nine short communications; Dr. Weissenborn's note on the *Bos urus* and Aurochs of the Caucasian mountains; Mr. Newman's characters of a new genus of *Popillia*; Mr. Westwood's illustrations of *Eulophus nemati*, the saw-fly, and his notes on gynandromorphous hymenopterous insects; Mr. Clarke's remarks on the antennæ of insects; Mr. Blyth's notes on the adult plumage of the female Smew, on the Pomarine Skua, and on native woodcocks; Mr. Luxford's observations on the *Chrysosplenium alternifolium*; and Mr. Bartlett's communications on the plumage of the Smew, wherein he assures you, with confidence, that the adult females possess the black mark round the eye, and that young males obtain this mark some time previously to their assuming the adult garb.

XX.—This, for August, commences with Dr. Brehm's observations on some of the domestic instincts of birds; and here the doctor affirms that most of them not only live in monogamy, but in a union which ends only with the death of one of the parties, and that the males of almost all the species living in monogamy interest themselves in their progeny. Prof. Owen's paper on the camerated structure in the valves of *Spondylus varius*, the water-clam, is illustrated with two figures, and with a chemical analysis of the fluid carefully withdrawn from the outer chambers of the shell; and the remarks of Sir E. F. Bromhead on zoological classification, are accompanied with an ingenious exhibition of quinaries. Another section of Mr. Blyth's analytic descriptions of the *Insessores Heterogenes*, defines the characters of the Motmots, and comprises a tabular view of the *Streptitores*, distributed according to their successive groups. Mr. Skaife's ornithology of Blackburn and the north of Lancashire, embraces a list of sixty-nine birds, which he distributes according to the arrangement adopted by Eyton in his published catalogue: in his foot-notes, Mr. S. mentions specimens of a white robin, a white willow-wren, a black lark, a white lark, and a white sparrow. A continuation of Mr. Martin's monograph of the genus *Semnopithecus*, comprises his descriptive characters of *S. nemæus*, the douc; *S. entellus*, the rollewai; *S. fascicularis*, the kra; *S. cristatus*, the chingkau; *S. femoralis*, the white-thighed monkey; *S. maurus*, the moor; *S. melalophus*; *S. flavimanus*, the sempai; *S. pyrrhus*; *S. auratus*; *S. fulvo-griseus*; *S. latibarbatus*, the broad beard; *S. johnii*, the johnny; *S. obscurus*, *S. vasalis*, and *S. recurvus*. For scientific intelligence, you have an interesting account of the eighty-sixth annual sitting of the Academy of Sciences at Haarlem; upwards of thirty distinct prize questions on subjects in philosophy, science, and history, are proposed for solution, by this institution. Mr. Blyth's remarks on the plumage of the smew merganser and of the crossbill, and Weissenborn's observations on the effects of the excessive and protracted cold of the last winter, occupy the place of short communications.

XXI.—September has Mr. Heward's observations on a collection of ferns

from Jamaica, for its opening article; and in this, seventy-seven species are enumerated, and their habitates distinguished. This is the list—*Gleichenia immersa*, *Aneimia adiantifolia*, *Polybotrya cervina*, *P. cylindrica*, *Acrostichum aureum*, *A. nicotianæfolium*, *Gymnogramma loveii*, *G. gracile*, *G. tartarea*, *G. calomelanos*, *Grammitis elongata*, *G. angustifolia*, *Tænitis lanceolata*, *Polypodium exiguum*, *P. glabellum*, *P. serpens*, *P. phyllitidis*, *P. crassifolium*, *P. pectinatum*, *P. incanum*, *P. sporadocarpum*, *P. loriceum*, *P. simile*, *P. reptans*, *P. smithianum*, *P. crenatum*, *P. lunarianum*, *P. miser*, and *P. effusum*, *Lomaria longifolia*, *Antrophyum lanceolatum*, *Diplazium plantagineum*, *D. juglandifolium*, and *D. obtusum*, *Pteris longifolia*, *P. grandifolia*, *P. plumerii*, *P. concinna*, *P. heterophylla* and *P. caudata*, *Asplenium serratum*, *A. ambiguum*, *A. obtusifolium*, *A. brasiliense*, *A. auritum*, *A. dentatum*, *A. rhizophorum*, and *A. præmorsum*, *Cænopteris myriophylla*, *Blechnum occidentale*, *Aspidium trifoliatum*, *A. macrophyllum*, *A. ascendens*, *A. exaltatum*, *A. hippocrepis*, *A. sprengelii*, *A. molle*, *A. invisum*, *A. venustum*, *A. pubescens*, and *A. villosum*, *Adiantum macrophyllum*, *A. serrulatum*, *A. radiatum*, *A. cristatum*, *A. trapeziforme*, and *A. tenerum*, *Cheilanthes microphylla*, *Davallia alata*, *Dicksonia cicutaria*, *Woodsia pubescens*, *Cyathea elegans*, *Trichomanes sinuosum*, *T. crispum*, and *T. scandens*, *Psilotum triquetrum*, and *Lycopodium cernuum*. In certain wooded districts of the Island, the ferns are very splendid and exceedingly beautiful in their form; the segments of their multifid fronds, moving with the slightest breath of air, are constantly in motion, and give them a most elegant and graceful appearance; the newly-arrived botanist cannot but be struck with wonder at such a display of ferns, mostly unknown to him; and he is enabled to make a plentiful collection at a small expenditure of labour. Article the second is a monograph of M. Desjardins', on the genus *Leptocera*, with descriptions of two new species found in the Isle of Bourbon: the *Leptocera mezieri* and *L. beaumontii* are the names he has assigned to them, in honour of two distinguished entomological friends. Mr. Clarke, in an ingenious experimental essay on the organs of hearing in insects, with thirteen illustrative figures, concludes that these creatures "could hear as plainly as he could himself," that their antennæ are the organs of hearing, and that the upper part of the antennæ has the power of increasing sound. In a communication on the *Succinea amphibia*, or amber-shell, and its varieties, Mr. Cooper points out some long-prevailing errors respecting this mollusc, and he gives six figures in explanation of his observations. Some entertaining as well as instructive remarks are contributed by Dr. Clarke, on the habits of the *Coluber natrix*, or common snake. Sir E. F. Bromhead proceeds with his remarks on zoological classification; and these are succeeded by Mr. M'Coy's strictures on Mr. Eytton's arrangement of the gulls; and by Dr. Hancock's notes on the *Psophia crepitans*, or trumpeter bird, the *waracobi* of the Arwahs of Guiana. Next, come Mr. Ogilby's reasons respecting the term *Simia* and its application; then Mr. Swainson replies shortly to some of his reviewers; and then are appended some notes by the Editor, relating to the same question.—Under the section intitled scientific intelligence, you see a letter of Lord Tankerville's on the wild cattle in Chillingham Park, and notes on the electric eel, on Artesian wells, on the electrical telegraph, and on the natural history of Nowaja Semlija and the Caucasian regions. Mr. Blyth's remarks on the doctrine of spontaneous generation; observations on the Oubudi, or

great cashew-tree of Guiana; Mr. Harvey's information regarding the *Tubularia indivisa*; his notes on the carrion crow, the rook and the cuckoo, and on white light from burning corallines; Dr. Weissenborn's letter on the *Bos urus* and the instinct of animals; and Mr. Clarke's discovery of a pulmonary orifice in insects, occupy the division allotted to short communications in Mr. Charlesworth's well-conducted and truly scientific magazine.

The Naturalist, illustrative of the Animal, Vegetable, and Mineral Kingdoms, with engravings; edited by Neville Wood, Esquire; royal 8vo, London, 1838.

No. XXIII, *August*.—Mr. Lankester takes the lead in this month's publication with remarks, being the substance of a lecture, on the general structure and habits of invertebrate animals, illustrated with a tabular view in seven figures, ingeniously devised. Notes, by Mr. Proctor, on an ornithological tour in Iceland, are followed by a notice of rare birds obtained in the winter of 1837-8, by Mr. Blyth, and then by Mr. Torre's list of birds found in Middlesex, amounting to one hundred and thirteen species. Next in order, are the chapters of correspondence and criticism, and the extracts from foreign periodicals, consisting of sketches on the hybernation of swallows, on the fresh-water and marine sponges, on a hanging bird's nest framed of silver wire, on the feeding of silk-worms on the fecula of potatoes, on a Malayan albino, on vegetable acids, on a fossil salamander, on a skeleton of the narrow-mouthed mastodon, and on vases discovered in the tombs of Santorini.—Among the proceedings of natural history societies, those of the entomological, horticultural, and zoological, are briefly noted. At the ornithological Mr. Blyth exhibited specimens of the three British geese allied to the domestic breed, and then offered a variety of observations on them, and on some rare birds obtained in the London markets; and, at the botanical, a paper of Dr. Wallis' was read on the genus *Myosotis*: he advances an ingenious suggestion concerning the *M. arvensis* and *M. sylvatica* and their specific distinctions. The Miscellanies are numerous and varied, and not unimportant; and, with two reviews, the *August* is concluded.

XXIV.—Under six distinct heads, Mr. Watson describes the effect of the winter of MDCCCXXXVII on vegetation in the neighbourhood of Thames Ditton: this is a truly practical article, the result of observation. It is followed by an anonymous communication on the sources of heat which influence climate: the writer traces this heat to the calorific power of the solar rays, the temperature of the planetary spaces, the heat of the earth's central mass, and the caloric changed by every variation from one state to another. Next in course, Mr. Wood explains his views respecting the exciting causes of varieties in birds and other animals; and his paper is followed by that of Mr. Hall, on the habits and peculiarities of British plants, and on the derivations of their Latin names. Mr. Neville Wood then gives a "condensed analysis" of Part XVI of Gould's "Birds of Europe," and the prologue to his article exhibits the prominent features which distinguish Mr. W.'s lite-

rary character—juvenile vanity, heartless illiberality, and false representation. Mr. Pigott favours the editor with a correspondence professing to be general remarks on the *Naturalist* and natural history ; and the chapter of criticism is occupied by a “few words” of Mr. Lankester’s on the formation of pearl, and by some words of his on the Linnæan and natural systems of botany. At the Liverpool natural history society, the discovery of a large slab of sandstone, “having upon its lower face a number of casts of feet in high relief,” was taken into consideration, and a report of the discussion stands here as a “proceeding” of that institution. The Miscellanies make a chapter of selections from *Withering’s Botany*, the *Athenæum*, and other periodicals ; and with its September number the second volume of the *Naturalist* is concluded.

W. H. Liddon
25 NOV. 1916



METEOROLOGICAL REPORT.—MAY.

Philosophical Institution, Birmingham.

MAY.	9 o'clk. a.m.		3 o'clk. p.m.		Dew Point,		External Thermometers.		Rain in		Remarks.		
	Bar.	Achd. Ther.	Bar.	Achd. Ther.	deg. Fah.	Fah. 9 a.m., 3 p.m.	Fahrenheit. 9 a.m., 3 p.m.	Self-register. Lwst. Hbst.	Inches. read off 9 a.m.	Direction of wind at 9 a.m.			
1	29.08	47.0	29.06	49.5	41.0	46.5	41.0	38.0	49.0	.160	E.	Overcast, 9 a.m.; heavy showers, p.m.	
2	29.25	53.0	29.25	58.5	48.0	51.0	54.0	45.0	61.5	.355	S.S.E.	Clouded, with a slight deposition; heavy rain at night.	
3	29.27	56.0	29.34	58.5	50.0	49.5	54.5	52.0	58.5	.135	S.E.	Overcast, 9 a.m.; very fair.	
4	29.50	56.0	29.52	57.0	48.5	50.0	54.0	54.0	59.0		S.W.	Fine morning; overcast towards noon; rain from 2; heavy shower, 5½ p.m.	
5	29.71	54.5	29.70	56.0	49.5	51.5	52.5	46.0	53.5	.220	N.	A deposition at 9 a.m.; heavy rain, a.m.; fair, p.m.	
6	29.82	53.0	29.82	57.0	43.5	59.5	45.0	58.5	59.5	.290	N.N.E.	Very fair.	
7	29.85	53.0	29.85	60.0	46.0	50.0	54.0	39.0	69.0		N.	Very fair.	
8	29.85	58.0	29.80	62.5	50.0	54.0	62.5	45.5	73.0		N.E.	Very fair.	
9	29.72	62.0	29.68	69.5	48.0	53.5	66.0	46.0	75.0		N.N.E.	Very fair, a.m.; overcast towards evening.	
10	29.86	58.0	29.87	60.5	44.5	47.9	48.5	56.0	41.3	57.0	E.N.E.	Overcast, 9 a.m.; fair after.	
11	29.89	53.0	29.81	56.0	42.0	42.0	50.0	60.0	36.3	61.5	E.N.E.	Very fair.	
12	29.64	54.5	29.51	60.0	38.5	43.0	57.0	66.5	42.3	68.0	W.	Very fair.	
13	29.24	56.0	29.2	54.0	41.0	42.0	48.0	47.0	44.3	53.0	W.N.W.	A slight deposition at 9 a.m.; showers, p.m.	
14	29.2	50.0	29.2	51.5	33.5	40.0	48.0	48.0	36.3	52.0	N.	Very fair.	
15	29.27	50.0	29.27	51.0	36.0	36.0	48.0	50.5	36.3	53.0	E.N.E.	Fair, but occasionally overcast.	
16	29.34	50.0	29.32	52.0	37.5	37.5	47.0	51.0	35.3	53.0	E.S.E.	Fair, a.m.; clouded, with thunder-showers, p.m.; wind very variable.	
17	29.35	48.5	29.31	52.0	35.0	39.5	45.0	54.0	35.3	57.0	N.E.	Very fair.	
18	29.39	51.0	29.40	53.0	38.5	42.5	48.5	52.0	40.0	53.0	N.	Fair, a.m.; clouded, with a slight deposition, towards night.	
19	29.36	51.0	29.24	51.5	43.5	45.0	44.5	49.0	41.0	51.5	E.	Overcast, a.m.; rain, with a brisk wind from the E.S.E., p.m.; greatest [force, 7lbs, at a quarter before 6.	
20	29.06	52.5	29.03	54.75	47.0	45.0	50.0	52.5	46.0	53.0	E.S.E.	Showers.	
21	28.99	55.5	29.06	58.0	49.0	47.0	52.0	57.5	48.0	58.0	S.	Overcast, but fair; rain at night.	
22	29.0	54.0	29.06	55.5	49.0	45.0	49.0	52.0	48.0	53.0	S.	Heavy rain, a.m.; clearing up, 3 p.m.; fair after.	
23	29.26	53.5	29.31	53.0	43.5	43.5	50.0	51.0	46.0	51.5	W.	Fair, but overcast, a.m.; rain, p.m.; a brisk wind from the W, force 7lbs.	
24	29.45	52.5	29.16	54.5	48.5	47.5	48.5	53.5	45.0	54.0	.065	N.	Overcast all day.
25	29.52	52.5	29.54	57.0	46.0	48.0	46.0	59.0	43.0	59.5	N.N.E.	Overcast, but fair.	
26	29.59	52.75	29.59	52.75	47.0	48.0	46.5	60.5	44.0	61.5	E.N.E.	Overcast, but fair.	
27	29.51	54.5	29.1	57.0	47.0	46.5	50.5	53.0	41.5	56.0	N.N.E.	Fair, a.m.; overcast, p.m.	
28	29.12	54.5	29.08	58.5	50.5	50.0	51.5	58.5	44.0	60.0	N.N.E.	Overcast, with a slight deposition, 9 a.m.; showers.	
29	29.08	57.0	29.11	60.0	52.5	53.0	53.5	57.0	47.0	59.5	S.E.	Clouded, with light showers.	
30	29.27	59.0	29.32	63.0	50.0	50.0	57.5	62.0	50.5	63.0	S.S.W.	A fine morning; very fair.	
31	29.42	59.5	29.42	63.0	49.5	53.0	58.0	63.0	47.0	64.5	S.W.		
Mean	29.42	53.89	29.41	56.82	44.89	46.51	51.19	55.18	42.94	56.73	2.335	Sum.	

Height of the cistern of the barometer above the ground, 23ft. 6in.
 Height of the cistern of the barometer above the presumed mean level of the sea, 473ft. 6in.
 Height of the external thermometers above the ground.—Fah. 4ft. 6in.; Self-reg. 4ft. 6in.
 Height of the receiver of the rain-gauge above the ground, 38ft.

Barometer.		Thermometer.	Dew Point.
9 a.m.	3 p.m.		
29.89	29.37	75.0	53.5
28.99	29.03	35.0	36.0

JUNE.

JUNE	9 o'clock a.m.		3 o'clock p.m.		Dew Point,		External Thermometers,		Rain in		Direction	
	Bar.	Ther.	Bar.	Ther.	deg. of Fah.	9 a.m.	3 p.m.	Fahrenheit.	Self-register	Inches,	read off	of Wind
1	29.47	58.5	29.42	61.0	51.0	55.0	51.0	56.5	48.0	58.0	.130	N.E.
2	29.31	59.0	29.28	61.0	53.5	54.0	55.0	58.0	50.0	61.5	.065	S.S.E.
3	29.26	60.0	29.2	63.5	50.5	56.0	57.0	60.5	49.0	63.0	.200	S.
4	29.2	60.5	29.24	64.5	51.0	56.5	57.0	63.0	50.0	64.0	.090	S.S.E.
5	29.41	61.0	29.42	65.5	49.5	55.0	58.0	67.0	50.0	68.5	.015	W.S.W.
6	29.58	59.5	29.64	59.5	45.0	52.0	52.0	54.5	46.0	55.5	.060	W.N.W.
7	28.71	57.0	29.68	58.5	42.0	44.5	51.0	58.75	44.0	59.5		W.N.W.
8	28.77	55.0	29.77	59.0	39.0	42.5	55.0	62.0	42.9	62.5		N.N.W.
9	29.69	58.5	29.59	62.25	46.0	52.0	55.0	60.0	45.0	61.0		S.
10	29.24	59.5	29.13	60.0	50.0	56.0	54.0	58.0	48.0	60.0	.015	S.E.
11	29.07	59.5	29.07	62.0	54.5	56.0	56.0	57.0	50.0	62.0	.235	N.
12	29.1	60.0	29.15	62.0	53.5	56.5	56.5	57.0	52.0	61.5	.030	N.E.
13	29.23	58.5	29.23	59.5	52.5	52.5	54.0	56.5	51.0	57.5	.190	N.
14	29.21	59.5	29.21	62.0	55.0	55.5	57.0	61.5	49.0	62.0		S.S.W.
15	29.23	59.5	29.21	61.0	55.0	56.5	56.0	57.0	49.0	59.0	.030	S.
16	29.27	61.5	29.31	66.0	54.0	53.5	58.0	65.0	54.0	66.0	.050	S.
17	29.36	65.5	29.36	70.0	60.0	62.0	64.0	70.5	57.0	73.0	.020	S.S.W.
18	29.19	66.0	29.04	68.0	61.0	61.0	64.0	67.5	57.0	68.5	.030	E.
19	29.27	62.0	29.31	65.5	54.5	54.5	57.0	62.0	53.0	64.0	.330	S.W.
20	29.18	62.0	29.15	64.0	56.5	59.0	56.0	61.0	50.0	63.0	.030	S.E.
21	29.06	62.0	29.11	64.0	49.5	56.0	57.5	61.0	52.0	64.0	.265	S.W.
22	29.24	60.5	29.31	63.0	50.0	50.5	56.0	61.5	49.0	62.0	.020	S.
23	29.65	60.0	29.72	65.0	53.0	54.0	61.0	67.0	49.0	69.0	.120	S.S.W.
24	29.52	65.0	29.52	70.0	57.0	53.0	65.0	50.0	74.0		S.E.	
25	29.6	67.0	29.6	69.0	54.5	55.0	63.5	69.5	55.0	70.0		N.W.
26	29.52	66.0	29.51	64.5	58.0	58.5	57.0	58.5	56.0	59.5	.150	E.N.E.
27	29.5	62.0	29.5	64.5	57.5	55.0	57.0	61.0	53.0	61.5	.010	S.S.E.
28	29.53	62.0	29.53	67.0	49.0	52.0	58.0	67.5	49.0	68.5		S.
29	29.5	61.0	29.5	62.0	50.0	55.0	61.0	58.5	49.0	65.0		W.
30	29.45	60.5	29.42	65.0	51.5	54.5	60.5	65.0	47.0	68.0	.010	S.E.

Mean 29.38 61.0 29.37 63.62 51.96 54.13 57.28 61.89 50.15 63.72 2.030 Stem.

Barometer. 9 a.m. 3 p.m. Thermometer. 9 a.m. 24th 9 a.m. 3 p.m. Dew Point. 3 p.m. Height of the cistern of the barometer above the ground, 23ft. 6in. Height of the cistern of barometer above the presumed mean level of the sea, 472ft. 6in. Height of the external thermometers above the ground—Fah., 4ft. 6in.; Self-reg., 4ft. 6in.

Remarks.

Overcast a.m.; rain p.m.
 Overcast 9 a.m.; heavy showers, with thunder, p.m.; wind variable.
 Fair, but clouded, a.m.; rain p.m.
 Very fair a.m.; overcast p.m.; light showers at night.
 Very fair.
 Very fair a.m.; rain towards night.
 Very fair.
 Fair a.m.; light floating clouds p.m.
 Overcast a.m.; light rain p.m.
 Showers a.m.; overcast, with rain, at night.
 Overcast, thunder showers.
 Overcast, but fair.
 Clouded, with light showers.
 Clouded, but fair, a.m.; showers p.m.
 Clouded, but fair, a.m.; light rain at night.
 Overcast 9 a.m., very fair after; light rain at night.
 Overcast a.m.; heavy thunder shower when dew point taken, 3 p.m.; rain.
 Overcast, but fair; brisk wind from S.W., greatest pressure 6th.; rain at night.
 Slight deposition 9 a.m.; showers p.m.; S.E. wind; gr. press. 8½th. 11½ p.m.
 Overcast, occasional sunshine, rain even; S.S.W. wind; gr. for. 9th. 5¼ p.m.
 Showery; much wind from the S.S.W.; greatest force 8th., at 1¼ hours p.m.
 Very fair a.m.; overcast p.m.
 Very fair.
 Very fair; rain during the night.
 A slight deposition 9 a.m. and 3 p.m.; overcast all day.
 A slight deposition; overcast p.m.
 Very fair.
 Very fair a.m.; overcast; thunder shower p.m.
 Fair a.m.; clouded p.m.; rain at night.

JULY.

JULY	9 o'clk, a.m.		3 o'clk, p.m.		Dew Point, deg. Fah. 9 a.m.	External Thermometers, Fahrenheit. 9 a.m.		Rain in Inches, read off 9 a.m.	Direction of Wind at 9 a.m.	Remarks.		
	Bar.	Atchd. Ther.	Bar.	Atchd. Ther.		9 a.m.	3 p.m.				Self-regist. Lwst. Hbst.	
1	29.38	63.0	29.46	65.0	55.5	54.0	57.5	64.0	51.0	66.0	Overcast, but fair, rain during the night.	
2	29.56	63.0	29.56	66.5	57.5	59.0	57.5	63.0	55.0	69.5	A slight deposition 9 a.m.; clouded; heavy rain at night.	
3	29.58	66.0	29.6	66.5	59.5	60.0	62.0	64.0	57.0	67.0	Overcast, but fair.	
4	29.66	66.0	29.63	67.5	60.5	59.5	63.0	65.0	58.0	72.5	Very fair.	
5	29.63	65.0	29.63	69.0	60.0	60.0	63.0	72.0	58.0	67.0	Very fair; rain during the night.	
6	29.53	67.5	29.46	71.0	62.5	62.5	64.0	70.0	58.0	71.0	Fair a.m.; a heavy shower p.m.; rain at night.	
7	29.44	65.0	29.44	67.5	55.0	58.0	59.0	62.0	51.5	64.0	Overcast, but fair, a.m.; a brisk wind, with rain, p.m.; greatest force of the [wind, 4½lb, at 12½ hours.	
8	29.44	64.50	29.46	68.0	55.0	55.0	61.0	65.50	53.0	67.0	Overcast nearly all day.	
9	29.66	64.5	29.65	69.5	57.0	58.0	60.0	71.0	54.0	71.5	Very fair.	
10	29.66	66.5	29.64	70.5	54.5	58.5	62.0	67.0	55.0	69.0	Very fair a.m.; showers p.m.	
11	29.61	67.0	29.6	68.0	61.5	62.5	62.5	63.5	57.0	66.0	Overcast, but fair, a.m.; heavy showers p.m.	
12	29.52	68.0	29.55	69.0	62.0	63.0	65.0	66.0	59.0	69.0	Overcast, but fair.	
13	29.51	67.5	29.43	71.5	60.0	65.0	61.0	70.5	58.0	71.0	Overcast, but fair.	
14	29.19	69.0	29.17	67.5	64.0	60.0	64.0	59.0	58.0	70.5	Overcast 9 a.m.; showers all day; a brisk wind from S.S.E., greatest force at [¼ before 4 p.m., 6½lb.	
15	29.18	64.0	29.3	73.5	55.0	59.0	60.0	60.0	55.0	67.0	Overcast 9 a.m.; fair p.m.	
16	29.55	63.0	29.61	72.0	53.0	52.0	59.5	66.0	51.5	67.0	Very fair.	
17	29.68	64.0	29.61	68.0	53.0	59.0	60.0	65.0	50.0	66.0	Very fair; a slight deposition at night.	
18	29.66	64.5	29.76	72.0	57.0	55.0	58.0	68.5	56.0	70.0	Overcast 9 a.m.; very fair.	
19	29.75	64.5	29.7	73.0	54.5	56.5	63.5	58.0	53.0	69.5	Very fair; rain at night.	
20	29.53	65.0	29.66	72.0	57.0	51.0	59.0	65.5	55.0	66.5	Overcast 9 a.m.; very fair.	
21	29.61	62.0	29.65	69.5	51.5	60.0	66.5	52.0	63.5	68.5	Very fair; rain at night.	
22	29.71	62.0	29.71	65.0	46.5	59.0	57.0	59.0	49.0	62.0	Fair, but overcast.	
23	29.71	60.0	29.64	68.0	49.5	51.0	58.0	64.0	48.0	66.0	Fair a.m.; light rain p.m.	
24	29.5	61.0	29.54	63.0	50.0	51.0	58.0	60.0	40.0	62.0	Very fair.	
25	29.54	59.5	29.53	64.5	49.5	47.5	55.0	61.0	48.0	63.0	Fair a.m.; overcast p.m.	
26	29.45	60.5	29.34	61.5	52.0	54.0	56.0	54.0	47.0	61.0	Overcast a.m.; rain p.m.; a brisk west wind, greatest force 5lb.	
27	29.34	59.5	29.36	67.5	48.0	51.0	56.0	63.0	50.0	65.0	Very fair.	
28	29.3	60.5	29.25	63.5	53.5	56.0	60.0	58.0	49.0	55.0	Fair a.m.; showers p.m.	
29	29.15	61.5	29.12	70.0	51.0	53.5	57.0	56.5	50.5	59.0	Showers, with occasional sunshine.	
30	29.15	59.5	29.18	61.0	51.0	55.5	53.0	57.0	48.0	60.0	Showers, with hail.	
31	29.34	59.5	29.41	63.0	53.5	50.0	53.0	63.0	48.0	63.5	Overcast, but fair.	
Mean	29.49	63.40	29.51	67.96	55.08	56.24	59.82	64.24	53.08	66.29	2.760	Sum.
Barometer. 3 p.m. Thermometer. 9 a.m. 5th 26th Dew Point. 9 a.m. 3 p.m. Height of the cistern of the barometer above the ground, 23ft. 6in. Height of the barometer above the presumed mean level of the sea, 472ft. 6in. Highest, 29.75, 19th 29.76, 18th 72.5, 5th Lowest, 29.15, 29.30, 29.12, 20th 47.0, 26th 46.5 Height of the external thermometers above the ground—Fah., 4ft. 6in.; Self-reg., 4ft. 6in. Height of the receiver of the rain-gauge above the ground, 38ft.												

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No. XXVI.

JANUARY, 1839.

THE ANALYST;
A
QUARTERLY JOURNAL,
OF
SCIENCE, LITERATURE,
NATURAL HISTORY AND THE FINE ARTS.

EDITED BY

EDWARD MAMMATT, Esq., F.G.S., F.S.A.,

MEMBER OF THE BRITISH ASSOCIATION, OF THE BIRMINGHAM PHILOSOPHICAL INSTITUTION, AND OF THE LEICESTER, THE DERBY, AND THE NOTTINGHAM LITERARY AND SCIENTIFIC SOCIETIES.

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NOTICES TO CORRESPONDENTS.

An Account of the Proceedings of the French Geological Society, from our correspondent at Berne, and Remarks on the Life, Character, and Times of Robespierre, have both been received, and shall appear in our next publication.

We would remind M.R.S.L. of the necessity of our being put in possession of the continuation of the observations on Burnett's "History of the Reformation," at the writer's earliest possible convenience.

Our Shrewsbury correspondent shall receive a private communication.

We feel obliged to Mr. Davies for the information contained in his letter.

We wish it to be distinctly understood, that the introduction of objectionable matter into the continuation of any article already published in our pages, will insure its rejection.

The Remarks on Dr. Billing's Principles of Medicine are under consideration; as are also "No Fiction," and "Notes on Temperance Societies."

Article IV. of the *Divi Botanici* has long been expected: we hope nothing has occurred to make our correspondent unusually idle.

Observations on the "Voluspa," and the Northern Mythology, will be acceptable.

The 27th Number of *The Analyst* will appear on the 1st of April next, and will complete the ninth volume.

The Articles on Botany, Geology, Ornithology, and Multilocular Shells, will be continued.

The Outlines of Periodical Literature for December are unavoidably omitted for want of room.

Arrangements are in progress for increasing the number of our Critical and Analytical Notices of New Publications.

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CRITICAL OBSERVATIONS ON BISHOP BURNETT'S
 "HISTORY OF THE REFORMATION OF THE
 CHURCH OF ENGLAND."

IN a season of great political convulsion, when it was almost an impeachable offence for any honest or right-judging man to hint his doubts concerning the reality of the popish plot; when a king was upon the English throne who had so basely apostatized from the faith he had sworn to his people, as willingly to co-operate in all the plans suggested for sweeping away the bulwarks of protestantism, and whose courtiers, for the most part, were of that unprincipled febleness, servility, and corruption, as to submit passively to his deeds of infamy; in this perilous and degraded state of public affairs, so utterly unsafe for any writer, not the apologist or panegyrist of despotism, Bishop Burnett produced his celebrated work, the "History of the Reformation of the Church of England." According to his enemies, this performance owes its origin to an overweening confidence in his own powers, assisted by mercenary views of personal advantage. If, however, we are to credit his own assertions, and assuredly no substantial reason can be alleged why we should not, he was solely influenced to this great undertaking by the praiseworthy motive of showing, as he says, "what popery and what the Reformation was,"* and, by this confrontation of the doctrines and the discipline of the national churches, to prove to what aggressions of civil and ecclesiastical tyranny a country would be exposed by the actual establishment of a religion such as that of Rome.

But some critics, in pointing out the principles and tendencies of these different and opposed systems of action, with more warmth than fairness, in our opinion, have asserted that the understanding of our historian is so warped by his profession, and his head so filled with the most chimerical fears and fancies, that, though his reasonings may be formed on facts, yet his views, whenever he touches upon the debatable ground of popery, are neither large, liberal, nor enlightened. Higgons, Sewell, Cole, and other writers still less favourable to his memory, have accused him, not only of preserving no temperance of

* Introduction to the *Hist. of the Reform.* vol. iii, p. xxviii, Oxford edition. "He gave," says Gorton, "his first volume to the public in 1679, when the affair of the popish plot was in agitation; the second appeared in 1681; but the third volume, which was supplementary, not until 1714.—See *Gen. Biog. Dict.* vol. i, p. 364.

judgment, but even of contaminating the page of history with the most furious sallies of political and religious animosities, in all his references to this subject. But we should be born approximate to the times of Burnett, rightly to appreciate his sentiments in this respect. At the period in which he lived, intolerance towards popery was justifiable on the footing of self-defence; and those disabilities compared by some to the edicts of arbitrary power, were then absolutely necessary to prevent the repetition of the terrific and sanguinary scenes which Europe had witnessed for upwards of a century from the violent and domineering spirit of the apostolic see. What Burnett affirmed experience had too fatally demonstrated; that the horrors preceding the Feast of St. Bartholomew,* the massacres in the Netherlands, and Switzerland, the wars of the League, of Flanders, and of Holland, and the fires of Smithfield—some of the bloodiest atrocities the

* Lord Clarendon calls 1570 "that infamous year," in allusion to the dreadful blow inflicted on the rights of humanity by the Massacre of St. Bartholomew. "An event," he remarks, "attended and accompanied with as foul dissimulation and horrid perjury as ever added deformity to wickedness."—*Religion and Policy*, p. 427. The Christian law inculcated the love of enemies: how widely, then, must the Roman pontiff, Gregory XIII, have departed from the mandate of our Divine Master! for no sooner was an account brought to him of that atrocious deed, than he went in procession to the church of St. Louis, in Rome, to return thanks to God for it, as for a happy victory; sent a nuncio to France to congratulate the king, and caused medals to be struck, and pictures to be painted, in commemoration of it. The butchery which took place in Paris was afterwards renewed in other towns of France. Dr. Lingard has specified the dates. No wonder that the detestable sentiment avowed in Cardinal Allen's book, that it was not only lawful, but *honourable*, to kill the excommunicated, should be supported by the practices, as well as the applause, of the many.—See an account of Cardinal Allen's admonition to the nobility and people of England, in Fuller's *Church History*, cent. xvi, p. 196. Cambden, indeed, tells us that "in the English Seminary at Rheims some there were who, with a certain astonishment, admiring and reverencing the omnipotency of the Bishop of Rome, did believe that the bull of *Pius Quintus* against Elizabeth was dictated by the Holy Ghost. These men persuaded themselves, and others that eagerly desired and itched after the glory of martyrdom, that it was a meritorious act to kill such princes as were excommunicated; yea, that they were martyrs who lost their lives on that account."—See *Annales Rerum Anglicarum Regnante Elizabetha Angl.* Lond. 1688, fol. p. 216. Even some of the staunchest adherents of popery have, after the maturest deliberation, come to the conclusion that the Protestant Reformation was mainly produced by the flagrant abuses of power in the Romish church.—See a copious extract from Fleury's *Eccles. Hist.* in Jortin's *Remarks*, vol. v, p. 72-181, wherein the cardinal does not scruple to make this confession.

human eye ever beheld—were plausibly ascribable to no other cause than the monstrous corruptions and delusions of popery.

Setting aside the protestant prejudices of our historian, it was natural for him to think of the evils which he saw around him, and which were to be traced to the same cause. He knew, too, that the reigning monarch was secretly hostile to the established religion; the heir presumptive anti-christ himself; and both the brothers, to their eternal disgrace, disposed to have recourse to the Roman catholic powers for supplies of men and arms in the prosecution of designs which, if successful, might again render England tributary to the holy see. Under such circumstances, when we review the facts and the persons by whom he was surrounded, and these persons, also, environed by a rampart of sovereigns leagued against the pure faith of England, it is not in the least wonderful that Burnett, fully aware of the real aim and object of the Roman court, ever to grasp at the ascendant, should manifest the most deep-rooted abhorrence of it, and fill so many of his pages with dismal forebodings of the wide-spreading increase of popery. In those days, indeed, few would have deemed the opinion an aberration from the mark of truth, that the complexion of the events and transactions then passing before them argued more for the extinction than for the durability of protestantism, and the confirmation of British liberty. Swift, however, who never misses an ironical stroke at Burnett (for he so hated this prelate as always to treat him, says Dr. Johnson, like one whom he is glad of an opportunity to insult), ridicules his pious fears of the Roman see again establishing its pretensions to spiritual sway in these kingdoms, by representing him as a person "who can smell popery at five hundred miles distance better than fanaticism just under his nose."*

* See a Preface to the Bishop of Sarum's introduction, vol. iv, p. 340, *Swift's Works*, edited by Walter Scott. If the "witty dean," instead of giving vent to his sarcastic humour at our historian's frequent and hasty repetitions of his prefaces and introductions, had fairly attacked those parts in them which were open to just censure—for example, had he pointed out when the bishop had formed a wrong or precipitate judgment of the labours of his predecessors—his remarks would then have been well worth our serious attention. John Fox, "famous to posterity," says Strype, "for his immense labours in his *Acts and Monuments*," four editions of which, huge folios, were published in the reign of Elizabeth, and which embody a mass of original matter amply illustrative of our civil and ecclesiastical history; a work which is a complete picture of the era it represents, and that may be almost said to confirm the history of the Reformation, is alluded to by Burnett in

Possibly our annalist, from his frequent gazing upon the religious horizon, may have at last grown dizzy, and by the workings of his fears transformed the dark spots he had really discovered there, into frightful and giant shapes. But, however the Bishop's tirades against popery may have served to multiply the points of irritation between the Roman catholics and protestants, still we ought, in justice to him, to remember that auricular confession, priestly absolution, and the sacrifice of the mass, were then making great progress in England; that an union with the Gallican church had been proposed by Lesley, a distinguished nonjuror and staunch defender of divine right; that Dr. Hiekes, the Coryphæus of the Jacobite church party, had maintained, without any reservation or qualification, that there was a proper sacrifice in the Eucharist; that Dr. Brett had published a sermon on the doctrine of priestly absolution as essential to salvation; and that some episcopalian writers, who manifested an excessive predilection towards political servility, had spoken disparagingly of the Re-

terms which must be displeasing to those who are conversant with the pages of our good martyrologist. His reference to Hall, who must have afforded him lights for which in vain he would have looked elsewhere, is also made in these disparaging words:—"Hall was but a superficial writer, and was more careful to get full information of the clothes that were worn at the interviews of princes, justs, tournaments, and great solemnities, than about the counsels or secret transactions of the times he lived in." Bishop Nicholson, too, in his *Historical Library*, p. 71, reiterates the same sentiment. "If the reader desires to know what sort of clothes were worn in each king's reign, and how the fashions altered, this is an historian [speaking of Hall] for his purpose; but in other matters his information is not so valuable." But both these learned prelates have fallen into great error, through oversight or negligence, in thus characterizing the writings of the honest chronicler; for beyond doubt or contradiction we are mainly indebted to this full and accurate reporter of fact, for all that we know as to the internal history of England during the reigns of Henry VII and Henry VIII. Imperfect indeed would have been our insight into the different rebellions and insurrections under Henry VII, or our acquaintance with the refractory spirit evinced by the citizens and commons to the arbitrary exactions of Wolsey, if we could not have consulted the writings of Hall. This willing partizan of the rights of the people—for we descry his attachment to them when he observes, upon the glaring scheme of usurpation practised by Henry, or his ministry, in attempting to levy money without an act of Parliament, that they (the people) "said, if men should give their goodes by a comission, then wer it worse than the taxes of Fraunce, and so England should be bond, and not free"—is conjectured to have been born about the last year of the fifteenth century. A lawyer by profession, he became a serjeant, and was likewise a member of Parliament, an office which was then an object of little ambition. He died in 1548.—See Chalmers' *Biog. Dict.*

formation, or at least of the manner in which it was brought about, choosing to call it a destruction, not a reform, of the church establishment. From these several circumstances, the reader will determine for himself what reason there was for the very name of popery lighting up a passionate aversion in the bosom of Burnett, and how far his opinions, in all that relates to this subject, were taken up without examination, and continued without justice.

But, however the Bishop may be accused of drawing the corruptions of popery with an exaggerating hand, yet, with all his protestant feelings and prejudices, he does not shut his eyes to the direful animosities to which the Reformation gave rise, not only among the promoters of the new learning and the maintainers of the ancient discipline, but between the different denominations of the reformed religion. Painful as it was to him to contemplate the sad inconsistencies of human reason, he shrinks not from showing how far an admirable and enlightened reformation was carried on by the aids of persecution; he does not attempt to hood-wink his readers to the melancholy fact of both foreign and English reformers demanding liberty of conscience for themselves, yet refusing to grant it to others—proclaiming to all Christendom the sacred rights of free inquiry and private judgment, yet each erecting a little popery of their own in their respective communions, where, in cases of dissent, they who professed to hate persecution, yet justified the exertion of temporal punishment, and the infliction of bodily tortures, and death;* so that,

* The protestant Servetus was put to death by the protestant Calvin; and the mild Melancthon spoke here the language of a sanguinary fanatic, when he declared that Servetus deserved to have his bowels pulled out and his body torn to pieces. The persecutions of protestants by protestants, as they are detailed by Chandler in his *History of Persecution*, may be designated a savage conspiracy against the written and unwritten rights of mankind. When Melancthon says, "Tuo judicio prorsus assentior. Affirmo etiam vestro magistratus juste fecisse quod hominem blasphemum, re ordine iudicata interfecerunt," he in these words delivered the sentiments of the German reformers. It is a well-known fact that the Swiss churches recommended the punishment of Servetus in formal letters. Nor are proofs wanting that some of our English divines were forward in testifying their approval on this occasion. But though the concurrence of these different bodies of men can never absolve Calvin from the heinous offence of having outrageously violated all the principles of reason, justice, and humanity, we must not forget that something more than grave blame is imputable to Servetus for provoking the feelings of the Christian church to the highest degree, by calling the Trinity "*triceps monstrum, et Cerberum quindum tripartitum*," and other revolting names. We can hardly, however, bring ourselves to believe that

for a time, our forefathers were delivered from one thralldom only to be subject to another. The truth is, that, with very few exceptions, the age of the Reformation was an age of mutual persecution. The only great man across whose mind floated the beautiful vision of toleration, was Sir Thomas More; but he may be said to have discarded such fancies as so many pernicious fooleries, when he flogged the Templar Bainham in his garden at Chelsea, and when afterwards he stood by on his being racked in the Tower. It would, however, have increased the reputation of Burnett for the wisdom of the practical maxims which he occasionally derives from the events passing before him, if he had shown that, from the first establishment of Christianity down to the era of the Reformation, the principles of toleration had never been rightly understood; and that our reformers had so widely mistaken this matter as to forget that it was not lawful for them to attack each other with any other sword than "the sword of the Spirit, which is the word of God:" yet intolerance, unhappily as it may have effected their personal conduct, found no place in the Liturgy and Articles of our church.

Of a work which has had the unexampled honour of receiving the thanks of both Houses of Parliament,* and of being translated into

the audacious impugner of the Christian verities would have been delivered up to the secular arm to be committed to the flames, notwithstanding all his blasphemies, if it had not formed such a leading feature in the policy of the reformers to guard, by acts as well as arguments, against the much-dreaded charge that their separation from the Romish church implied the heretical violation of the catholic faith. Nothing can be juster here than the remark of Bishop Warburton. "The other reformers, such as Luther, Calvin, and their followers, understood so little in what true charity consists, that they carried with them into the reformed churches that very spirit of persecution which had driven them from the church of Rome."—See Notes on "Essay on Criticism," in *Pope's Works*, vol. i, p. 222.

* In the journal of the House of Commons, 3rd December, 1680, there is this entry, "Ordered that the thanks of this House be given to Dr Burnett for his book entitled *The History of the Reformation of the Church of England*." And in the journal of the House of Lords, 3rd January, 1689, "Thanks were ordered to be given to the Rev. Dr. Burnett for the great service rendered by him to this kingdom, and to the protestant religion, in writing the *History of the Reformation* so truly and exactly; and that he be desired to proceed in the perfecting what he further intends therein with all convenient speed. And it is further ordered that the said Dr. Burnett be, and is hereby recommended to the Lords the Bishops for some ecclesiastical preferment." We suppose the bishops thought that what was the business of all was not the business of any; for preferment he had none from this recommendation. In these times, parliament goes right to the crown, which answers better.

most of the European languages, that praise may be deemed meagre which is not excessive. But, however true may be the observation that this work is a powerful antidote against popery, and that it forms the most solid basis of the author's fame, yet even they who are disposed to rate it as the best history we then possessed in our language, will be far from deeming Burnett a writer whose taste is always correct, whose style is always noble, and in every respect suited to the majesty of history.

He who describes striking characters and most important events—and there are few periods in the annals of modern history illustrated by a greater variety of them, and by more exalted talents and virtues, than the reigns which Burnett has recorded; he who sits in judgment upon emperors, kings, pontiffs, prelates, and statesmen, ought not to be constantly stepping aside from his proper track to follow the antiquary and memoir-writer in their minute details. But if he does appear in their walks, his entrance should be marked by an attitude neither mean, nor ungraceful, nor uninteresting. The microscopic observer will discover more than one little spot where Burnett's notions as to the perfections of historical painting will be thought very jejune, when he can select, as a fit circumstance to be transmitted to future generations, that the infamous Bishop Bonner delighted in the taste of pears and puddings.*

Now, it is natural to expect that what elevates the mind of man will not debase his language. In the relation of great actions we have a right to look for an elevated tone of diction. In the pages under review, there is a homeliness in many of the expressions which often borders upon vulgarity, and but ill accords with our ideas of him who contemplates the downfall of hierarchies. Not that there is a

* It should seem, however, that Burnett thought that a touch of this kind heightened the effect of the picture, and almost placed the man which it portrays before our eyes; for he thus answers Dr. Hickes, who had commented very sharply on his noticing the foregoing particularity:—“He is angry for my taking notice of Bonner's writing to his friends for puddings and pears. I must desire you to observe his ingenuity in this; since my reflections did not fall on these words of Bonner, but on his adding that if his friends would not furnish him with them, he would give them to the devil, and to all the devils. Now this, from a bishop in affliction, writing to his private friends, shewed a strange kind of brutish levity, and the observing of that was not below the majesty of history, as Bonner acted so great a part during the whole time that I write upon: such a stroke as this, in my poor opinion, ought not to have been suppressed.”—See the Bishop of Sarum's letter to the Bishop of Lichfield and Coventry.

necessity always for the same set of words, or for the same cadence, lest the gravity and dignity of the historical style should be violated. But to any, even the least competent judge, it must be manifest that, though the annalist may be naked and defective in all the minor graces and elegances of phraseology, yet he may use plain words to express strong sensations, without descending to such expressions as "all fair above board," "the big-bellied* queen," "Henry the postilion of the Reformation," &c.

Neither are the Bishop's narrative powers of the highest order. For an apt selection of details we shall often look in vain. There is a disposition to dwell upon circumstances with a painful minuteness, which shows the writer to have been as incapable of combining a vast group of actions, motives, and events—of fixing upon those features which are the most strikingly attractive—as of enriching his subject by political or historical disquisitions. In vain, also, do we look for those graphic descriptions which may be expected from the pen of him who, drawing his narrative from those contemporary documents which render the annals of nations picturesque and characteristic, can give to his scenes (if he be at all able to paint with a master's hand) that close resemblance to reality which makes us, as it were, eye-witnesses of the transactions he records. We, therefore, miss in this performance that romantic attraction, if we may so call it, by which the reader is invited to a repeated perusal. In a *History of the Reformation of the Church of England*, it is also natural to expect that the progress, character, and effects, of the Reformation would be always kept in sight, that such a work would rather regard religious than secular affairs.

Now, some will, doubtless, think that Burnett fairly stands charged with the reproach of contemplating that ever-memorable event more under the latter than the former aspect—that he has not sufficiently regarded human events in subserviency to Divine Providence. It might, indeed, have been naturally expected from Bur-

* Mr. Custance bestows a severe and, indeed, excessive censure on the second chapter of the *History of the Reformation*, when he assigns the following reason "for writing that interesting portion of our history, that it contained so many exceptional passages as rendered it unfit for juvenile reading."—*Popular Survey of the Reformation*, Lond. 1813, p. 14. No doubt Burnett has written some passages which would now be deemed coarse and indelicate. But a more fair and less fastidious critic would have felt that allowance must be made for old writers. The mode in which our historian speaks of Anne Boleyn's pregnancy was not considered as low and vulgar in his time, however it might be so in the extreme in an author of the present day.

nett's fervid and exalted piety—from one so uniformly earnest in his devotional feelings—that he would have pointedly described Cranmer as a blessed instrument in the hands of a gracious Providence for the introduction and advancement of the great work of the Reformation in these realms; that he would have pressed upon the notice of his readers Cranmer's unlooked-for visit to Waltham, as affording a strong—we would almost add, an overpowering—evidence of a special interposing Providence; for assuredly there is nothing weak or superstitious in believing that in the leading epochs of human affairs the hand of an Almighty Contriver is plainly discernible. Had this sentiment been more frequently inscribed on the pages of Burnett, “It is the Lord's doing, and it is marvellous in our eyes;” had it been more intimately incorporated in the narrative, when speaking of our religious reformation; had he viewed its establishment less with reference to human than divine agency;* we have no hesitation in asserting that those persons who conceive, and among them are to be found men of the profoundest intellect, that Providence, from first to last, superintended the development and consolidation of our Reformation, would, instead of accusing him of a mistaken zeal, been more disposed to consider his work as a monument of wisdom than they do now from the omission of such a course of reasoning. In a word, it should be broadly and manifestly the design of the historian of that great moral and religious revolution, always to recognize the workings of Divine Providence in it, that the reader may have no occasional misgivings of his writing more like a worldly-minded politician than a well-instructed Christian. This apology, however, may be fairly offered for Burnett's large digressions on the civil history, not only of England, but of Europe at large, that from the influence which state politics then exercised on ecclesiastical affairs, the latter is almost unintelligible without a frequent reference to the former: for, as Priestley justly observes, in his encomium on this history, “Never were the affairs of the church and state so intimately connected as during that period.”†

In making these remarks, and in presuming to think that the excellencies of the performance are not always upon a scale commensurate with the magnitude of the subject, we are sensible that we should

* “The Reformation,” says a pious writer, “will ever be considered as a great event in the divine dispensation by all true members of the Church of Christ, to the end of time.”—Dr. Buchanan's *Three Eras of Light*.

† *Lectures on History*, p. 209.

convey a very inadequate conception of Burnett's character as a writer of history, if we omitted to observe that his unwearied efforts and industry in ransacking archives, collating manuscripts, collecting records and charters highly curious and interesting in themselves, and almost entirely untouched by former writers, qualified him to treat his subject in a fuller and more authentic manner than any of his predecessors, while, of course, this laborious examination and patient comparison of authorities and documents, enhance the credit and value of the work.* It were also a culpable omission not

* To modern ears, the following exclamation may sound offensive to good taste, but it is very accordant with the spirit and habits of the man. Indeed, it may be almost excused in any writer, when repelling a violent attack upon the accuracy of his researches, the fidelity and honesty of his opinions. "What, he to be accused of gross ignorance and wilful falsehood, that rummaged all the most considerable libraries of the kingdom to fetch out registers and authorities, records and acts and copies of despatches, memoirs and other manuscripts of the times, out of which to compose his history, who has printed a volume in folio of those sort of pieces, in justification of what he says—he to whom the nation and the parliament itself gave public testimony of the esteem which they had of his book?" &c.—See a Letter to Mons. le Grand, on his *History of Henry VIII. with a plain Vindication of the same*.—Dr. G. B. Bishop Nicholson has passed this high encomium on the general fidelity and exactness of Burnett's *History*:—"The defects of Peter Heylin's *History of the Reformation* are abundantly supplied in our author's more complete history. He gives a punctual account of all the affairs of the Reformation, from its beginning in the reign of Henry VIII. to its final establishment under Queen Elizabeth, A.D. 1559; and the whole is penned with a masculine style, such as becomes an historian, and is the property of this writer in all his writings. The collection of records which he gives at the end of each volume are good vouchers of the truth of what he delivers in the body of the history, and are much more perfect than could reasonably be expected after the pains taken, in Queen Mary's days, to suppress every thing that carried the marks of the Reformation upon it."—p. 74. Bishop Kennett thus pointedly alludes to this most useful undertaking:—"I confess I have often wondered how there ever came in a party within our own church, who made it their business and their pleasure to degrade those admirable volumes of the *History of the Reformation*, as if they were afraid or unwilling our church should be justified in her separating from the Romish church."—See *Register and Chronicle, Civil and Ecclesiastical*, Lond. 1728, fol. p. 36. Foreign writers, also, of the most opposite religious and political opinions, have pronounced that Burnett has produced one of the most important historical works of which modern English literature has to boast, and have commended him especially for observing a strict impartiality in many instances where it might be supposed that his bias in favour of certain persons and parties would have disqualified him from performing that important and difficult duty.—See the *Bibliothèque Univer-*

to say that his general views are accurate and sound, far above the standard of the times in which he lived,* and sometimes marked by comprehensive profoundness and originality; that he is an honest reciter of facts, though with certain political and religious biases,† that he has, for the most part, judiciously treated contemporaneous evidence, whenever it could be obtained, as deserving more attention than non-contemporaneous; and that, though his style makes but a distant approach to the perfection of historical composition, he has the talent of communicating his information with distinctness, perspicuity, and fulness, and occasionally of imparting his reflections with dignity and impressive eloquence. These are no ordinary merits; and hence these volumes have been long regarded as a permanent addition to the wealth of English literature.

Now, whether the inveterate prejudices and opposition Burnett

selle, tom. v, for the year 1687, p. 530, and the *Acta Eruditorum*, Leipsic, 1687, p. 58-9.

* We would refer for instance to his very sensible and liberal remarks on the statutes against usury, or lending money on interest, vol. ii, p. 260. The authority of Aristotle, who loudly condemns usury on the principle that money is in its nature barren (vide *Πολιτικά*, A ζ, p. 2-3.), or, as our Shakspeare has it, “a breed of barren metal,” was implicitly bowed to by the fathers of the church, and echoed by all our learned ecclesiastics after the Reformation. Isaac Walton, the well-known biographer of Bishop Saunderson, tells us that “the good bishop would not take money on interest, yet he would give £100. on condition of receiving £20. for seven years.” Admirable casuist as this prelate was, yet I think it would have puzzled him not a little if to his nine cases of conscience he had been required to add a tenth, which should point out in what the difference consisted between those two modes of procedure. In the epistles of Calvin there is an allusion to usury, which exhibits an uncommonly enlightened exemption from the prejudices of mankind on this much-disputed topic. The whole passage is too long to quote, but the following sentence will show that the Genevan reformer set at nought the decisions of the church against that practice. “Nunc igitur concludo, judicandum de Usuris esse, non ex particulari aliquo Scripturæ loco, sed tantum ex æquitatis regula.”—*Epistolæ*.

† We are inclined to think that the following observation of the bishop, in his *Reflections on the “Ecclesiastical History” of Mons. Varillas*, will be thought, by many of his critical readers, as applicable to the delineation of some of the most figuring personages in the *History of the Reformation*, as well as in the *History of his Own Time*. “An historian who favours his own side is to be forgiven, though he puts a little too much life in his colours, when he sets out the best side of his party and the worst side of those from whom he differs; and if he but slightly touches the failures of his friends, and severely aggravates those of the other side, though in this he departs from the laws of an exact historian, yet this vice is so natural that, though it lessen the credit of the writer, yet it doth not blacken him.”

had to contend against were owing to the circumstances of his being a *foreigner*, the invidious name by which a Scotsman was then designated, or to that independence of mind which, scorning to seek preferment by any mean practices of sycophancy or servility, dared to walk in a path of its own, regardless whether it led to honour or neglect; from one or other of these causes, there was a very powerful effort put forth to stifle his undertaking at the outset. In these liberal and enlightened times (for here these terms may be applied with the strictest propriety), when the precious memorials of past ages, deposited in large and costly libraries, are so easily accessible to our perusal that they may be almost called the general property of the learned, the following epistle cannot be read without surprise, mixed with the strongest indignation, by all those who generously sympathize in the common cause of letters.

For the worthy, honoured Sir John Cotton, Bart., these.

Honoured Sir,

Perceiving by Mr. Burnett (whom I lately met with), that he expects you at your house in Westminster soon after Christmase, and intends to come to you for search of what you have, in order to his purposed *Historie of the Reformation*, I thought fit to let you know that some of our most eminent bishops and orthodox clergy, hearing thereof, do not think him a competent person for such a worke, being a *Scotsman*, as though none of our *English* divines were sufficient for such an undertaking. Besides, we playnly see, by his *Historie of the Duke Hamilton*, how he is byast; for he lays the foundation of the late execrable rebellion totally upon the bishops. I am, therefore, advised to intreat you that when he makes his address to you concerning this business, you will tell him that you are, and shall be, willing to promote any good worke, but this being of weighty consideration, and he *no Englishman*,* you think it expedient to advise with some of our chiefest bishops therein.

* That cold, heavy, though erudite Hearne, who would have anathematized Burnett and his writings if his power had been commensurate with his malice, has endeavoured to excite a similar prejudice against his *History*, on the same grounds. He calls him, in his *Leland. Collect.* "a foreign writer of our Reformation," vol. iv, p. 56, and in the preface, vol. i, p. xxvi, he styles him a man "in alia gente natus," and "in rebus Anglicanis *percyrinus* fere atque hospes."

Sir, the high honour I beare to you made me thus bold to trouble you about this matter. Praying, therefore, for your good health. I rest,

Your most obliged Servant,

Herald's Office, London,

WILLIAM DUGDALE.*

20th December, 1677.

Every able man is conscious of his own efficiency; and Burnett had too much confidence in his powers to be induced, by any obstacles of this kind, to relinquish his design. Admitting, however, that his modesty of deportment might have diminished with the growth of his celebrity, and that, therefore, his character might provoke resentment and encourage prejudices,† there is something so monstrous in

* "Communicated to me by the Rev. Dr. Tunstall. Wednesday, Nov. 13th, 1754."—Tho. Birch, *Lansdowne MSS.*

† Were we to lay any stress upon the satirical effusions of the day upon Burnett, we should be tempted to regard him as one who conceived that his learning, in point of civil and ecclesiastical history, was so superior to any of his contemporaries, that he stood in that respect, according to his own imagination, like Saul in the assembly of the Jews, higher from his shoulders upwards than any of his people, and therefore disdained all literary assistance whatever, come from what quarter it would. To those, indeed, who acquiesce in the averments of Swift, Scott, Sewell, and Bevil Higgons, and believe the bishop to be what they would fain make him, the most self-opinionated of mortals, the following extracts will have their redeeming traits of modesty in them.

For the most honoured Doctor Bolase, at Chester.

Most honoured Sir,

This daies carrier brings you downe 2nd part (sic M.S.) of my *History* to which you contributed so considerable an assistance that I am sure it deserved both a higher acknowledgment than you will find I have made for it, in my book, and a greater return than so poor a present; but you are so kind, and have obliged me by so many waies, will, I hope, read *what* I have written with so favourable a censure, that if you except to any thing in it you will so far oblige me as to let me know it; and that you will alwaies look on me as one that you have, by many great favours, bound to live and die, dear Sir,

Your most humble and most obliged servant,

G. BURNETT.

(Sloane, MSS. 1008, original). The reader will find, also, in the third vol. of the *History of the Reform.* a very grateful allusion to the Rev. Thomas Baker, the erudite antiquary at Cambridge, for the literary services rendered

the disproportion between the offence and the punishment, that it is difficult to believe that, without some dark over-ruling agency, the learned author of the *Monasticon* could have voluntarily forfeited his own respectability and reputation by making so unheard of a request as the one couched in his singularly discreditable letter. That part of it where Dugdale alludes to a chief bishop having possessed him with prejudices against Burnett, as being no friend to the prerogative of the crown, or the constitution of the church, the inference is clear to the mind of the latter that Archbishop Sancroft was the originator of the impediment just mentioned.

Yet, from a late view of the character, temper, and writings, of this eminent prelate, in a work peculiarly valuable from the impartial tone in which it is written, we must believe that Sancroft had too much of the real saint in his disposition, was too mild and amiable, and too sincere a promoter of religion, to be betrayed into an act which would have reflected indelible disgrace on his name. That something, however, like a slippery and shuffling movement, is to be detected in the archbishop's attempts to prevent the consecration of Burnett in his appointment to a bishopric, is evident from the following statement, which shows the grounds that led our historian to speak of his ecclesiastical superior, in the *History of his Own Time*, with a nearer approach to acrimony than may be justifiable. But that he was the instrument of obstructing the formation of an historical work that promised solid and enduring excellence, is a charge not, without the strongest evidence, to be fastened on one who knew how to honour merit, both in his enemies and friends.

to Burnett—services which he afterwards nobly rewarded with a pension. The modest spirit, too, of the following letter to Sir William Dugdale, answered by queries on his part, in that bristling tone of defiance, like one disposed to tilt at another in a sort of tourney of intellect, and from which it may reasonably be suspected that garter king at arms was not disposed to conciliate the man whom he had wronged, is another proof how completely overcharged in expression are the conclusions of the above-mentioned writers respecting Burnett's conceit and self-sufficiency.

SIR,—I most humbly thank you for the great favour you have done me in sending me the enclosed remarks, which I return back to you, with the answer which I have writ to your queries. I desire nothing so much as to find out truth, and shall be very ready to confesse my mistakes as oft as any shall discover them to me. I doe esteem myselfe, in a very particular manner, bound ever to continue, Sir,

Your most humble and obliged servant,
G. BURNETT.

Burnett thus describes the behaviour of Sancroft to him upon his promotion to the mitre :—When his election to the bishopric of Sarum was returned and confirmed, the precept of consecration went, of course, to Archbishop Sancroft, who said that he would not obey it. Some bishops tried to persuade him, but in vain. The Earl of Nottingham tried ; but succeeded no better. The party, says the Bishop, got it among them, that he had promised them not to do it. But as the time came on, and he saw that he must be sued in a *præmunire*, when this was tried before him, he all of a sudden ordered two commissions to be drawn, both of which he signed and sealed, and both are yet extant : one, directed to the Archbishop of York, and all the bishops of England ; the other, to the Bishop of London, and all the bishops of the province, to execute his metropolitical authority during his pleasure. This last was made use of, and, pursuant to it, the doctor was consecrated, so that this was as much the archbishop’s own act as if he himself had consecrated him. His vicar general produced this commission, and was present at his consecration ; and all the fees were paid to his officers ; for care was taken to receive them. “ Here is only half of the story,” says the bishop ; “ a blacker scene follows. It seems, the party complained of this, and he, to give them some satisfaction, sent by Mr. Wharton a message (unless he went in his name without his order) to Mr. Tillet, the registrar, to send him that commission. It was sent and withdrawn. This was not only the violating of registers, but it was a plain robbing me of that writing upon which the canonicalness of my own consecration, and my legal right to this bishopric, was founded. By telling this, I am far from wishing to lay any hard character on the memory of that archbishop. I look upon it as an effect of the injustice and violence of the party, by which he might be carried too easily to some thoughts against his own mind. Thus it continued till many months after his death, when notice was given to the bishop of it by me, who had occasion to know it.—Upon enquiring he found it to be true, and took advice of it upon oath ; and, to prove the tenor of the commission, the bishop gave notice of his design to Mr. Tillet, and let him know, that if he did not recover that commission between that time and Michaelmas Term, he would sue him in Chancery, in order to the discovery of the matter. “ He best knew,” continued the bishop, “ how he bestirred himself upon this occasion. The commission was brought back to him, but by whom I have never made it my business to enquire.” When these aggravating circumstances are impartially compared together, it can hardly be denied that Burnett had weighty

reasons for regarding the archbishop as ready to wound, yet afraid to strike*—as willing to gratify his personal pique or dislike at the expense of candour and justice.

With respect, however, to the opposition encountered to the work which he was to bequeath to posterity as a lasting memorial of his industry and genius, our own conviction is that it sprang from the Duke of York and the popish party. Few historical facts are now better established than that the overthrow of the protestant hierarchy was the darling project of this infatuated† prince, although we should have conceived, from its roots having struck so deep in the very centre of the state, that he must have been convinced the difficulties he had to struggle with would be insurmountable. Any thing, therefore, which tended to thwart this chimerical hope, this unconstitutional desire (and what could be more effective for this purpose than a full and authentic exposition of the errors and corruptions of popery?), was sure to create in James extreme irritation and uneasiness. Now, Burnett he experimentally knew to be too impracticable‡ to be awed into submission, and too wise to be the dupe of his political wiles. No way, therefore, presented itself to the theological despotism of James, half so easy and certain to nip this undertaking in the bud, as to cause it to be insinuated, in those ambiguous terms by which “more is meant than meets the ear,” that Burnett was disqualified by his prejudices and passions for the task he meditated. These insinuations, we might suppose, coming from the heir presumptive to the throne, had the desired effect upon the mind of garter king at arms, a high tory both in church¶ and

* Although it is evident that the name of our author is quite hateful to the primate—see the *Familiar Letters of Dr. William Sancroft*, Lond. 1757, p. 32—yet there is something very offensive to good taste in Burnett's want of propriety of diction whenever he has occasion to introduce the name of the archbishop. The prelates of his own party he always mentions by their proper titles. But Sancroft is the only title with which he honours him. This is downright vulgarity, spite, and malevolence.

† “After the business was ended, in a familiar discourse, the king declared to this father that he would either convert England, or die a martyr; and that he had rather die to-morrow, that conversion wrought, than reign fifty years, without that, in happiness and prosperity.”—See *A Letter from a Jesuit at Liege to a Jesuit at Friburg*, giving an account of the happy progress of religion in England, 1687—8, February 2nd.

‡ See Burnett's account of an interview (*History of his Own Time*, vol. v, p. 177) to which he was invited by James, when Duke of York, evidently with the purpose of gaining him to his party.

¶ Archdeacon Grenville, in a letter to Dugdale, is pleased to compliment

state by principle, gratitude, and interest ; for without an assumption of this kind it is difficult to furnish a clue to so extraordinary an event in the literary history of these times.

But if the reader should be inclined to think that the duke, or his party, made no direct or indirect attempt to discountenance Burnett’s project,* we should still be loath to believe, that there could be found in Sancroft that union of rancorous activity, of persecuting bigotry, and dull torpor of pedantic bad taste, to have done so, however positively it may be asserted by Antony Wood† that the arch-

him with the title of “ the champion of the Common Prayer Book among the laity.”—See Hamper’s *Life of Sir William Dugdale*, p. 431.

* “ The Duke of York did put on his agents, Duke Lauderdale and Sir John Cotton, particularly to mar the goodly design of Dr. Burnett which he had in penning his noted work on the *History of the Reformation*.”—*A Scratch against Popery and the Duke of York*, p. 3. In the second volume of the *History of his Own Time*, p. 66, the bishop refers to their unity of design against his literary project ; but there is not the slightest allusion to James pursuing that object through these indirect and tortuous courses. In one of the *Observers*, a paper to which it is well known Burnett was a contributor, he complains of this imbecile despot having acted in the manner mentioned. Soon after James became acquainted with Burnett, he seems to have contracted a dislike towards him, which in the end blazed forth into perfect hatred. The following extracts from the correspondence between James and the Prince of Orange will show the determined hostility to the bishop, and what dread the former entertained of his religious and political counsels. In one of the letters, dated Nov. 23rd, 1686, at which period our historian was an exile in Holland, the royal bigot represents him as a man not to be trusted, and an ill-man. In December 7th, 1686, he complains of the doctor as “ a dangerous man, though he would seem to be an angel of light.” The princess, in her answer, Hague, December 28th, 1686, endeavours to vindicate him to her father ; but on July 28th, 1687, the king desires that his daughter “ will not let him come to her chapel.” If arguments drawn from the general principles of our nature are to be taken for data, I am greatly disposed to think that these documents will materially tend to confirm the assertion of James’s sinister design to discourage or suppress the *History of the Reformation*.

† See *Life of A. Wood*, written by himself. Dr. Kennett thus refers to this appointment:—“ The king was under some difficulty to find a proper successor on the death of Archbishop Sheldon ; but at last, through the recommendation of his brother, the Duke of York, he resolved upon Dr. Sancroft, Dean of St. Paul, as a person of great prudence and moderation. “ But in matters of this nature,” says Dr. D’Oyley, “ it is seldom possible to attain a correct knowledge of the truth ; for it rarely happens that recommendations which are made in the interior of a royal closet are disclosed truly to the public.”—*Life of Sancroft*, vol. i, p. 151—152. There can be no doubt, generally speaking, that we see but very imperfectly the little capricious fluctu-

bishop chiefly owed his elevation to the primacy to the then powerful interest of the Duke of York; a circumstance which rendered the supposition more probable with some, that he would willingly connive at the duke's wish of frustrating the prosecution of the *History of the Reformation*. But, however the archbishop's natural indecision of temper may have produced a vacillating species of conduct towards Burnett, it is a thing not easily to be credited, that he would have allowed either his well-known dislike to our historian, or the weight of his obligations to his patron, to lead him to an act as derogatory to his character as to his high station.

That a very unjustifiable opposition was raised against the undertaking of Burnett, is a fact which cannot be denied or sufficiently reprobated. Yet, although his production took immediate hold of public favour and of public confidence—an event which he has perhaps too ostentatiously set forth in his numerous prefaces and introductions*—it as soon became the object of repeated and severe animadversion. Bishops, tory clergymen, nonjurors, and laymen, successively laboured to demolish a monument, in honour of the Reformation, which the voice of Parliament had pronounced to be a

ations, or fits of admiration or dislike, which have so often influenced the higher appointments both in church and state, and therefore have need for better expounders than we can summon to our aid, to explain satisfactorily the true cause of them. But surely, in the present instance, we may receive for a fact the assertion of Wood, that the real motive for placing Sancroft on the archiepiscopal throne, was to exclude Compton, Bishop of London, from that situation, and who was so obnoxious to the Duke and the popish party. Now all this seems fit and proper, and in the due order of things. While human nature continues what it is, parties, like individuals, will not scruple to seek their own aggrandizement as far as may be consistent with prudence, nay, a great deal farther. Compton had, at that time, so much distinguished himself by his love of civil and religious freedom, as to acquire the name of the *protestant bishop*. The duke, therefore, thought, wisely enough, that the former prelate would be more easily brought to serve the purposes of arbitrary power than the latter, and consequently recommended him for the primacy. Nor did he find out his mistake till Sancroft refused to read the noted declaration for liberty of conscience. The effectual and righteous stand then made showed that the new metropolitan was quite as ready to fight the battle of the constitution as the dreaded Compton. In alluding to Sancroft's conduct upon this occasion, we cannot but observe that his name would have shone brighter in the page of history had not its lustre been afterwards dimmed by laying the foundation-stone of one of the most fatal schisms in the Anglican church.

* "For the purpose of attracting and interesting the public in the history, we have no less," says the author of the *Speculum Sarisburianum*, "thau three new ones in about one year's time."

suitable one. Out of the number of these attacks, we will select those, in which the writers make the greatest parade of their own learning, and reproach Burnett for his ignorance with all the arrogance of self-assured superiority; and afterwards we will address ourselves to the task of pointing out in what instances we conceive he has afforded specimens of oversight and negligence: where his favourable affections are improperly turned; where he has not called together all the contemporaneous evidence in explaining interesting facts; and where his claims to a commendable impartiality may be fairly questioned, though we shall assume the critical office with very opposite feelings to those who were ever ready to deny the long and laborious course of eminent usefulness which marks the days of this truly pious and erudite prelate.

There can be little doubt that, had not our historian avowed, with the greatest frankness, the mistakes he had occasionally fallen into,*

* “I did, in my second volume, publish a commission to Cromwell, thinking it was that which constituted him the king’s vicegerent, which I, in reading the beginning of it, took to be so; but this was one of the effects of the haste in which I wrote that work.”—See *Hist. of the Reform.* vol. i, p. 286.—Specimens, however, of this haste, are not merely confined to the body of the work itself, but are likewise to be traced in the supplement. There is a striking instance of it in speaking of the convocation of the year 1543. “We have,” he says, alluding to this assembly, “only this *short word*, that on the 29th of April the archbishop treated of the Sacraments, and on the next day on the article of free will. This is all I could gather from the copy of the minutes of the convocation.” Now Wilkins has printed these minutes in his *Concilia Magnæ Britanniæ*, vol. iii, p. 868; and whoever will consult them may discover that Burnett can only have glanced his eyes over these interesting documents, a fact which will appear as clear from the following statement. On the 20th of April the exposition of the Lord’s Prayer in English was discussed; on the 21st, that of the five first of the commandments; on the 24th and 25th, that of the remaining five, with another of the sacraments, and not on the 29th, according to the assertion of the bishop; on the 27th, that of the word faith, of the twelve articles of faith, of justification, works and prayer for the dead; and on the 30th that of the article of free will, upon which latter day the primate thus alludes to the strenuous labours of the commissioners to promote the best interests of their country. “Quo die lectus et publice expositus in vulgari Articulus liberi Arbitrii tradidit Reverendissimus Prolocutori: eo animo, ut ipse eundem tractatum coram Praelatis inferioris Domûs perlegeret. Quem lectum restituerunt superiori Domui cum hæc approbatione quòd pro catholicis et religiosis eos acceptarunt; necnon gratias ingentes patribus egerunt quòd tantos labores, sudores, et vigilias religionis et reipublicæ causâ, et unitatis gratiâ, subierunt.” Other instances of inaccuracy have been noticed by Archbishop Laurence, in the notes to his *Bampton Lectures*, p. 190, and by Mr. Todd, p. 6, note to his *Declaration of our Reformers*. In apology for these errors, it

nis work would considerably suffer in the estimation of the judicious from the opportunity which those mistakes gave to his adversaries of raising a hue and cry against him, as a falsifier of facts and opinions. Nothing operated as so powerful an antidote to such attacks as the candour of his own declaration. A contemporary author has alluded to this feature of his character in the following words: "I cannot but exceedingly commend his ingenuity in acknowledging, and gladly amending, some errors in his former part; in doing which he has very satisfactorily cleared his reputation as an historian, it being the assured argument of sincere innocence to own himself once guilty, and the best sign that the will retains no inclination to a fault which it voluntarily discovers and makes such full satisfaction for."

Nevertheless that diligent student of history and antiquities, Henry Wharton, who, under the fictitious name of Antony Harmer, hurled his javelin of criticism against our author, is not disposed to pronounce so merciful a judgment. With him there is no tolerance for the slightest mistakes of this literary ornament of the age. But the learning of Wharton, who fell an early victim to his studiousness, was ill-digested, and his conclusions were often rash. The impulse of a disputatious mind, or another motive far less excusable,* produced this volume of sneer and sarcasm, before he had duly

has been said that such was Burnett's rapidity of composition that, after having collected and arranged the materials of his second volume, he was ready for the press in the short space of six weeks. A fact furnishing, no doubt, a striking proof of what the natural powers of the mind will accomplish, when seconded by persevering industry; but not, perhaps, quite satisfactory to those critical readers who, while they are willing to applaud him for the vast body of information brought to light by his single-handed strength, yet, in order that the voluminous pile might be well put together in all its parts, would require something more of the searching spirit of modern investigation—something more of a notarial strictness in the large masses of manuscripts and books he had to look over and examine.

* We are told by Burnett that he was at one time earnestly importuned by Wharton to use his influence with Archbishop Tillotson for a prebendal stall at Canterbury. But the request, though enforced with all possible zeal and sincerity on the part of Burnett, not proving successful, the angry and disappointed candidate revenged himself upon the *History of the Reformation*, under the plea that its author had not merely been lukewarm in his cause, but had gone the unjustifiable length of secretly prejudicing Tillotson against him and his pretensions.—See *Hist. of the Reform.* introd. p. xxvi-vii. It has been made a topic of reproach against our historian, by Swift and Sewell, that he should have put forth this declaration after his adversary's death. Wharton, however, has deliberately recorded the motives which urged him

weighed and examined his facts and authorities; and where he is most successful in playing off his reputation against Burnett he struts, if we are to believe a contemporary writer, in borrowed* plumage. That he possessed great knowledge of the times before the Reformation is candidly admitted by Burnett himself; and his deep reading and patient industry there are employed, it must be confessed, to the purpose, in the following charge which he prefers against him. The bishop has observed that “there is in the rolls an inspeximus of King Edgar’s erecting the priory and convent of Worcester, which bears date anno 964, Edgar VI or St. Innocent’s day, signed by the king, the queen, the archbishop, five bishops, six abbots, but neither bishop, see, nor abbey are named, nor dukes and five knights; but there is no seal to it.” Now as the inspeximus is the recital of the instrument only, Burnett, if he had been skilled in archæologic lore, would have known that no seal is to be found accompanying such a document. Moreover, in Edgar’s time seals were not affixed to charters, an assertion in which we are supported by the authorities of the most learned antiquaries. The earliest royal seal affixed to a charter, at least of which we have any knowledge, being that of King Edward the Confessor.

to attack the *History of the Reformation*; and after the following passage no one will hesitate to admit that Burnett’s accusations were ill founded. “Die Octobris, Historiam Reformationis Anglicanæ a Burneto scriptam evolvere cæpi, eo animo ut defectus et errores ejus notare ac demum evulgarem. Quod facere statui, tum ut nimiam ejus, quæ in damnum Ecclesiæ abusus est, famam convellerem; tum ut Historiæ nostræ Ecclesiasticæ errores receptos posteris indicarem; tum ut animo meo multis ab eo injuriis irritato nonnihil indulgerem.” In other parts, also, of this curious piece of autobiography, published by Dr. D’Oyley, there is striking evidence how deeply these principles were rooted in Wharton’s heart. It would appear, indeed, from other facts, that his moral excellencies did not keep pace with his literary ones, since a heavier accusation could scarcely be brought against a man than is contained in the following sentence:—“At Mr. Geary’s I chanced to see Mr. Wharton’s book of the *Historia Literaria*, wherein I found several notes blotted out, which was about a year before he died. The notes that are added are highly injurious to me, and afford one of the most unaccountable instances of unfair and disingenuous dealing that perhaps ever passed among men of letters.”—See Dr. Cave’s letter to Archbishop Tension respecting W. Wharton in D’Oyley’s *Life of Sancroft*, vol. ii, p. 165.

* Battely, the editor of Somers’ *Antiquities of Canterbury*, has this remark in a letter to Strype, the historian. “Of the *History of the Reformation*, he (Mr. Wharton) had made some few animadversions in his *Historia de Episcopis Londinensibus*, in the ‘Life of Bonner.’ Of those which he published he was beholden to me for the greatest part.”—July 9th, 1695, p. 445.

The reader shall now see in what manner Wharton exposes the ignorance of his fellow-workman in the mine of antiquity. "Had this historian been acquainted with our English antiquities, he would have known that this very charter hath been often and long since published in the *Monasticon*, in *Spelman's Council*, and elsewhere, and would not have imagined himself to have discovered some rare secret in this inspeximus. Or if he had been acquainted with our rolls he would not have expected to find in an inspeximus, the seal of an original charter enrolled in it; or if he had been conversant with ancient records and charters made before the Norman times, he would have spared his observation of the want of a seal to this charter (although he had seen the original charter and observed this in it), and of the not naming either bishopric or abbey therein. For they who know this to be the case of the far greater part of the instruments and charters of their times, would no more have made such an observation than, after having said that they had seen a man named Titius, they would have added that he had a nose to his face."

In speaking of the revered martyr Ridley, our historian observes that "he, as himself writes in one of his letters, was named to be Bishop of Duresme, being one of the natives of that country, but it never took effect;"* upon which his adversary, ever ready to deny him the praise of accurate and laborious research, thus exultingly accuses him of being guilty of misrepresentation. "It so far took effect that Ridley was actually translated from London to Durham; for in the instrument of the restitution of Bonner to the see of London, in the beginning of Queen Mary's reign, it is alleged that the see of London was then void by the removal of Ridley to Durham, made by King Edward after the deprivation of Tonstal; and Bonner was, therefore, reinstated in London, pronouncing Ridley deprived of the see of London; but, on the contrary, Ridley is, in the register, declared to have been deprived of the bishopric of Durham for heresie and sedition." It is not fair to try the author of a long and laborious history by a few insulated mistakes of dates and facts; and upon them to ground a charge, as Wharton has done, of general bad faith and perverted judgment. He evinces, indeed, like Swift, a festive delight in seizing upon every thing that can vilify the man or depreciate his work; and therefore the biographer, as it were a personal friend of Burnett, rejoices in giving the reader the following specimen of Wharton's own inaccuracy in

* *Hist. of the Reform.* vol. i, p. 38.

statement of fact. He observes that “whereas David Pole is said, by the historian, to have been preferred at Peterborough, one of the poorest of the bishoprics, in truth, Peterborough was at that time none of the last bishoprics in England, having been endowed by King Henry far above any of the newly-erected bishoprics, and so continued until Scambler, the successor of this David Pole, did by a simoniacal contract convey away the better part of the possessions of it to a noble person of the neighbourhood ; that he might make way for his own translation to the see of Norwich, to do the like mischief there.” Now the fact is far otherwise, according to the following assertion of White, Bishop of Peterborough. “Scambler says he resigned a good part of his bishopric *into the queen’s hands*, for the Lord Burghley got it, or, as his family asserts, bought it. He resigned the manors of Thirley and Walton in Lincolnshire, with the manor of Southorpe in Northamptonshire, and at Tambolt with the lordship of the loake of Peterborough, and had in exchange for it £84. per annum fee, farme rent ; *but it does not appear there was any symoniacal contract about it.* Scambler had formerly been chaplain to Lord Burghley, and by his means had been preferred at Peterborough.”—THOMAS PETERBOROUGH.*

In the peroration of Wharton’s critical volume, nothing can more strikingly illustrate the malignity with which the whole is composed than the following passage, in which there is an exaggerated view taken from the bishop’s mistakes in fact or induction, mixed up with a great deal of spite and empty insult ; for while Wharton pretends to have pointed out, in the gentlest manner imaginable, the positive defects and errors in the ecclesiastical portions of the history, he artfully strives to bring the whole work into disrepute, by representing it as a very easy task to detect similar blunders and errors in the civil parts of it, could he prevail upon himself to make the obnoxious experiment. “We were sufficiently able to defend the justice of the Reformation before any *foreigner* undertook to deliver the history of it, and shall be so still, if the reputation of his history should suffer any diminution. Lest it should be imagined that I have examined this history so curiously as to have discovered all the errors and defects of it, and to have left no room to after diligence and inquiry of others, I do protest that I never formed any design of this nature until about a month since ; I have noted what my memory and present collections suggested to me. But it may be easily observed that I have considered only that part of the history which is purely

* Lansdowne MSS. fol. 490.

ecclesiastical, and not all that. If any one should take the pains to examine in like manner the civil history intermixed therewith, it may be feared that not a few errors and defects may be discovered in that part of it."

Now Burnett felt that his antagonist's name stood too high in repute in the learned world to be disregarded, however he may have disgraced it on this occasion. Accordingly, he noticed Wharton's strictures in a letter addressed to the Bishop of Lichfield and Coventry. And if, after the perusal of this epistle, any will deny him the character of a candid and high-principled man, actuated in the composition of his history by one uniform and constant spirit of moral and religious truth, and that he was urged to this vindication of it by nothing so much as that honest indignation against imputed guilt, which is the last thing extinguishable in a virtuous mind; we shall set them down as incapable of appreciating the dignity and independence of conscious integrity, and as chargeable with the most disingenuous misrepresentation. But the bishop shall speak for himself; for those relations are commonly of most value, as Dr. Johnson justly observes, "in which the writer tells his own story."

"As to the charge of falsehood that comes over so often, 'tis plain, by his frequent repeating of it, that he intended it should stick, I can and do affirm it to my knowledge, I did not willingly mistake or misrepresent, nor so much as suppress any one particular relating to that great transaction. If I was called upon to say this with the greatest solemnities of religion, upon oath, or at the sacrament, I am sure I could do it with a good conscience, I have also sent for Mr. Angus, of St. Dunstan, who was then my amanuensis, not having leisure and opportunities at present to enter into the detail of small matters, and have asked him if he can imagine how there can be so many mistakes about dates in the transcribing of the records; for this author scarce allows one of them to be true, and therefore he thinks better credit is due to the history; and that the records will be of little value if once there appears just reason to suspect the care or the fidelity of the transcriber; and assures he the reader that 'of those dates which he has examined, he has found near as many to be false as true.' Mr. Angus was amazed at this, and said he was ready to take his oath upon it that, though he himself used his utmost diligence to examine every paper that he copied out, yet I was never satisfied with that, but examined all over again myself; so that I may sincerely say what I once writ on a very solemn occasion, at the making of my will, when I went out of England, that I writ that work with the same fidelity as I should

give an evidence upon oath in a court of judicature. If a man is to write memoirs he must keep close to his vouchers; but where he writes an history of such consequence, and that was transacted long before his own time, and that it is visible that many of the most valuable papers relating to it are lost, but that enough remains to give him a right view of the whole and a clue to guide him in it, he may certainly find many hints of things which, since he cannot lay them before his readers as historical facts, he may and ought to suggest them as probabilities; and he who forms a true character of a man from his secret prayers, can frame judgments and see likelihoods that could never come in the way of one who only reads his work, but does not dwell so long upon it, nor turn it so much in his thoughts as himself has done; and yet offering of these may be necessary, since they may be of use to let his reader see further than he would do without them. Only I wish that, when he writes next, he may do it in a better spirit and in a decenter style. He who knows so much cannot judge so ill as not to see that the attacking a man's reputation, but especially a bishop, in so great a point as that of his truth and fidelity, upon success of which all his labour, and the credit of his whole life and ministry, does depend, is not a slight thing, and is not to be attempted unless one is very well assured that what he objects is not only just in itself, but that it is incumbent on him to do it. The fame of a man is a most valuable thing; and the rules of charity, and against detraction and slander, are delivered in such weighty strains in the New Testament, that it is no small matter to make so bold with them."

The other formidable opponent to whom we have alluded was the fierce and implacable nonjuror, Jeremy Collier. His *Ecclesiastical History of Great Britain* has deservedly obtained for him a high literary reputation. Too much praise cannot be bestowed on his indefatigable labour in procuring the large mass of documents and authorities from which he made his digest. But his Romanizing, high-church principles, weaken the effect of his narrative. The second volume of this performance, under the guise of history, is so purely controversial that, in fairness, we may say, with Burnett, that, "it is an artful attempt, from the beginning to the end of it, to palliate the corruptions of popery, to blacken the character of those confessors and martyrs who never slackened their glorious efforts till they had procured its overthrow, and to vilify and insult the names of Edward and Elizabeth, not hesitating even to accuse the latter of being the author of more mischief to her church than her sister Mary." Collier, indeed, had all the qualifications of a

first-rate controvertist ; he was learned, acute, and pertinacious, quick to suspect and still quicker to condemn, fearless to assert and slow to retract,* and bent upon hunting down his prey in every form with the staunchness of a bloodhound. But, presuming to write before he had read to any other purpose than to adopt every historical evidence which favoured his own conclusions, the consequence is that, although his objections are delivered with an air of triumph and confidence, as if unanswerable, they really are so brittle as to fall to pieces upon the first handling. It would be tedious to examine all the particular facts which he would contradict, but we will notice a few, in order to prove that his articles of impeachment are productive of no other effect than that of setting Burnett's fidelity and accuracy in a more conspicuous light.

The first place in which Collier overshoots the mark is, an alleged mistake as to a matter of fact. Burnett had asserted that parents teaching the Lord's prayer, the ten commandments, and the creed in the vulgar tongue, was crime enough to bring them to the stake. And for this piece of information, we are told by Collier that "Burnett quotes no other authority than the martyrologist Fox, who only authenticates what he affirms by the testimony of one Mother Hall." But if we turn to the pages of that venerable writer, who so diligently laboured in collecting records of ecclesiastical antiquity, it will there be found that Bishop Longland is transcribed to prove that several were delated for teaching and learning

* As a proof of this assertion, take the following passage from a pamphlet entitled *A Specimen of the Gross Errors in the second volume of Mr. Collier's "Ecclesiastical History,"* being a vindication of the right reverend and learned Dr. Gilbert Burnett, late Bishop of Sarum, from the several reflections made on him and his *History of the Reformation*, in the several places as it is noted in a late advertisement in the *Evening Post*, p. 42. "In order to show that Burnett is a falsifier of history, and not to be credited in any thing, he (Collier) writes that the two first editions of the *Ordinal* made in King Edward's reign, printed with privilege by Grafton and Witchurch, have none of the different rites mentioned by this gentleman. That these were the two first editions he now owns himself convinced ; but still he can't or wo'n't believe his lordship that the first *Ordinal* printed by Richard Grafton, the king's printer, in the month of March, 1549, cum privilegio ad imprimendum solum, had any of the different rites mentioned by his lordship, till, by the favour of a gentleman uncommonly well furnished with curiosities of the press, that he had got a sight of, and he then says that, upon perusal, he finds the Bible laid upon the bishop's neck, the pastoral staff put in his hand, and the chalice, with bread in it for the priest, some of the consecrating and ordinary ceremonies ; but not the least attempt to recal his censure, or to ask pardon for his partial and unreasonable mistrust of the bishop."

the ten commandments, pater noster, ave Maria, and the creed, in English; and were forced to abjure their doing so, to save their liberty. Now surely this abjuration were unnecessary, if their learning the ten commandments in English involved in itself no crime. Collier does not presume to assert that any authorized translation of the decalogue into English then existed. True it is, that the Evangelic or Gospel Doctor—for that was the distinguished appellation given to the renowned John Wiclif* by his contemporaries—had appeared as a glorious benefactor to his species, by translating the Bible into our vernacular idiom;† yet the Scriptures, thus opened by him, were only to become again a fountain sealed and a spring shut up, since, by a constitution of Archbishop Arundel, prefaced by the declaration that it is a perilous thing, as St. Jerome testifieth, to translate the text of Holy Scripture from one idiom into another, it was enacted and ordained that thenceforth no one should translate any text of Sacred Scripture, by his own authority, into the English or any other tongue, in the way of book, tract, or treatise; and that no publication of this sort composed in the time of John Wiclif, or since, or thereafter, to be composed, should be read, either in part or in whole, either in public or in private, under the pain of the greater excommunication, until such translation should be approved by the diocesan of the place, or, if the matter should require it, by a provincial council: every one who should act in con-

* Mr. Baber, in the prefatory memoir to his valuable reprint of our proto-reformer's *Translation of the New Testament*, informs us that his name has been spelt in sixteen different ways. One of his recent biographers, Mr. Vaughan, chooses the name of de Wycliff, which he derives from the village where he was born, in the northern district of Yorkshire; and he adds, that, in documents prior to that cited by Mr. Baber, y appears, in almost every instance, in the first syllable, and ff in the second. Mr. Le Bass, however, in his powerfully written volume of the life of this great teacher of the truth, deems it “expedient to adopt that orthography of the name which has the smallest number of letters,” and, therefore, after this high authority, much as it may offend some antiquarian eyes, we write the name as above.

† We learn from Sir Thomas More “that the whole byble was, long before Wiclif's days, by virtuous and well-learned men, translated into the English tong, and by good and godly people, with devotion and soberness, wel and reverently red.”—*Dialog*. iii, p. 14. But of these versions, could any of them be read at this day in our churches; as that of Wiclif's might, and even his translation, from an excessive desire to render it strictly literal, is frequently obscure to those who are not conversant with the idiom of the latin. Upon this point, see Lewis's *Life of Wiclif*, p. 121; and *History of English Translations*, by the same author, p. 22.

tradition to this order to be punished as an abettor of heresy and error. The persecutions which followed this decree of the convocation held at St. Paul's in 1408, are strikingly attested by the various episcopal registers. But such was the gross spiritual ignorance of the British population in those days that the pontificate, however it might be shorn of its pristine strength, still wielded the sword of dominion with such force and severity, that it was beyond the reach of a man gifted with powers short of omnipotence to diffuse any thing like a spirit of general disaffection to its edicts.

As to what Collier adds respecting the tenets of Wiclif and the Lollards being similar, there is historical proof that this is not the fact. It may be conceded that the said Archbishop Arundel, in reference to the spread of his doctrines, affirms that "Oxford was as a vine that brought forth wild and sour grapes, which, being eaten by the fathers, the teeth of the children were set on edge; so that the whole province of Canterbury was tainted with novel and damnable Lollardism, to the intolerable and notorious scandal of the university." It may also be stated that the most inveterate of his adversaries, Henry Knighton, fathers upon Wiclif this maxim: that civil magistrates forfeited the right to govern by the commission of any mortal sin. But calumny and invective, at all times, are wretched substitutes for historical truth; and truth it is, that a sentiment so absurd, and so injurious to the good order of society, never formed a part of that learned and enlightened man's* political or religious creed, whatever may have been the opinions of his poor priests or travelling preachers. Rash and unguarded as may have been some of the expressions of the precursors of the Reformation, yet it is a thing not credible that the university seal should have been affixed to a document declaratory of "the great learning and good life of John

* That many opinions which he lays down and defends would receive the welcome support of the most orthodox protestant, there can be no question. But candour obliges us, at the same time, to observe, that some of the notions of this illustrious man, if taken in their full import and bearing, tend to an undue disparagement of the church and of the civil power. For example, that tythes were mere alms—that oaths were unlawful—that church endowments in perpetuity may be resumed by the patron, or sovereign—that dominion, or the right to property, was founded in grace, or the persons being in the acceptance of God. These dangerous novelties, this excess of ardour for sweeping innovations, which would break down all the fences of subordination, evidently betray more of the puritan spirit, than of the sober reformer, whose plan of action is accommodated to the real state of man. The several opinions of Wiclif, collected from his works, are to be found in Baber's life of him, p. 32.

Wiclif," if he could have put forth or countenanced an opinion which has such manifest tendency to subvert all legal authority.

It can hardly fail to strike a well-informed reader that it is intentionally to misrepresent Burnett to make him refer to the reign of King Edgar for the settlement of the monks in England; whereas Burnett only refers to this period for the commencement of the increase of that order. "From the days of King Edgar," says he, "the state of monkery had been still growing in England." The time when the monks became a scandal to religion, and an outrage to decency, from the dissoluteness of their morals, and from their expensive and joyous mode of living, is specifically applied by Burnett to the period when they were settled in most of the cathedrals of England, and were possessed of the best church benefices; a period which any one conversant in our ecclesiastical annals well knows was long after the days of King Edgar.

When Collier tells us that "the bishop's remark won't hold, of suffragans being put down by degrees from the ninth century," we have another proof of his wilful perversion of Burnett's meaning; for to imagine the historian of the Reformation, who pored over so many quartos and folios upon episcopal government in the different ages of the church, ignorant of that of which any one who has acquired the slightest tincture of ecclesiastical history must be aware, is alike inconsistent with truth and probability. It were, indeed, to divest Burnett of all acquaintance even with what may be called the elements of theological learning, to suspect him not to have known that in England, down to the era of the Reformation, our bishops had deputies, whom they denominated their suffragans,* and who had been consecrated bishops of sees in partibus infidelium. These, however, differ materially from the Choroepiscopi spoken of by Burnett, whose order was abolished, both in the east and west, before the end of the tenth century.

* The pretext assigned for consecrating six and twenty suffragans in the reign of Henry was, the frequent employment of bishops in foreign embassies, or in offices of the court. To these spiritual functionaries was delegated the power, in the absence of the diocesan, of consecrating churches and churchyards, conferring orders, confirming children, and other episcopal functions. But as, in these enlightened times, learning and intelligence are not confined to ecclesiastics, so the startling anomaly of clerical statesmen no longer exists to offend alike the eye of religion and reason. It is a mistake to imagine, as some writers have, that their functions ceased in our church at the period of 1638.—See *Edin. Miscell.* 1692, p. 12. For Dr. Brett tells us, in a letter of his, in *Drake's History of Yorkshire*, that the last of these bishops died in 1776.

The bishop is railed at by his captious adversary for misrepresenting "the universities, clergy, and religious," because he charges them with hostility to the Reformation. But we are at a loss to discover much difference between his own sentiments and those of Collier on this point; since the latter admits that "the leading churchmen thought all innovations dangerous, and that the fundamentals of religion suffer this way."

It would surprise those who have been accustomed to contemplate Bonner as the willing instrument of Mary's cruelties to her protestant subjects, to find that he was friendly* to the Reformation when he took out the king's commission for his bishopric. Collier, however, would have us believe that Burnett disparages this passionate and unprincipled prelate in the following passage:—"Now Bonner began to show his nature. Hitherto he had acted another part. For being most extremely desirous of preferment he had complied with Cromwell and Cranmer, so that they had great confidence in him." The name alone of Bonner is apt to call forth such revolting ideas of cruelty and bloodshed, if the united testimony of our historians in the sixteenth century have not marvellously misrepresented him, that Collier's notion of his ever being, in reality and in truth, well affected to the Reformation, is like stepping in quicksand, and as devoid of all foundation as another statement, which he maintained in opposition to Burnett, that Cromwell died a Roman catholic. That this opinion is not the result of careful investigation, but is taken up without sufficient evidence, we think, may be fully attested from the expressions in the prayer which, as quoted by Fox, he uttered at the hour of death. "I see, and know, that there is in myself no hope of salvation, but all my confidence, hope, and trust, is in thy merciful goodness. I have no merits, nor good works, which I may allege before thee; of sins and evil works, alas! I see a great heap. But yet, through thy mercy, I trust to be in the number of them, to whom thou wilt not impute their sins; but wilt take, and accept, me for

* He had been raised to the archdeaconry of Leicester by the former, and appointed the master of the faculties by the latter. And had, even during his residence at Paris, where he was sent to supersede Gardiner as ambassador to the French Court, made a great show of zeal about an impression of an English Bible and Testament which was then preparing there.—See Wordsworth, *Eccles. Biog.* vol. ii, p. 361—364. But during this year (1539) "he hateth," says an old writer, "the new light."—*Lansdowne MSS.* "He there began to speak of the Reformation as the Lancashire parson did of the English communion, that it was the most devilish work that ever was devised."—*Strype's Eccles. Mem.* vol. ii, chap. 2.

righteous and just ; and to be the inheritor of everlasting life. Thou, merciful Lord, was born for my sake ; thou didst suffer both hunger and thirst for my sake ; thou didst teach, pray, and fast for my sake ; all thy holy actions and works thou wroughtest for my sake ; thou sufferedst most grievous pains and torments for my sake ; finally, thou gavest thy most precious body, and thy blood to be shed on the cross, for my sake. Now, most merciful Saviour, let all these things profit me, that thou freely hast done for me ; which hast given thyself also for me. Let thy blood cleanse, and wash away, the spots and foulness of my sins. Let thy righteousness hide and cover my unrighteousness. Let the merits of thy passion and bloodshedding be satisfaction for my sins. Give me, Lord, thy grace, that the faith of my salvation in thy blood waver not in me, but may ever be firm and constant.”* These words demonstrate no Pelagian confidence of human merit, no clinging to the tenet, held by every individual of the church of Rome, that fallen man is both capable of preparing himself for the reception of grace, and of deserving it by his own virtue ; but a recognition of the grand doctrine of justification by faith, asserted by our church, that “we are accounted righteous before God for the merit of our Lord and Saviour Jesus Christ by faith, and not for our own works and deserving ;” and therefore assuredly the seeds of protestantism† were sown in Cromwell’s heart.

Every age has its generation of hypocrites, who, in any casual observations, fancy themselves able to discover some refinements hidden from common eyes, esoteric doctrines, concealed meanings,

* Hall says “then made he his prayer, which was long, but not so long as both godly and learned.”—Edit. 1548. p. And in another place this chronicler remarks, “he was a man that, in all his doings, seemed not to favor any kynde of popery.” It is not very likely, then, that he should have closed his eventful life in the character of a papist.

† It is a sufficient answer, to those who have fallen into such absurdity and paradox as to deny the vicegerent’s attachment “to the new learning,” to observe that, when the impression of the whole Bible in English was completed, under the patronage of Cranmer, known by the title of “Matthew’s Bible”—though this name was unquestionably fictitious, the translation being partly executed by Tyndale and partly by Coverdale, Cromwell took upon himself to present a copy of this bible to Henry, and to obtain the king’s leave for its sale and diffusion ; upon which the archbishop thus writes to the minister :—“Your lordships shall have a perpetual laud and memory of all them that be now, or hereafter shall be, God’s faithful people, and favourers of his word. And this deed you shall hear of at the great day, when all things shall be opened and made manifest.”—Strype’s *Cranmer*, b. i, chap. 15.

accessible only to the initiated ; and that Collier belonged to this class is an inference which may be fairly deduced from the passage which we shall now quote. Burnett affirmed that " the authority of the privy council had been raised so high by the celebrated statute of the 31st of Henry VIII, cap. 8, that they were empowered sufficiently for displacing the lord chancellor, or putting him out of office ;" to which the erudite nonjuror replies that " if the privy council had no other warrant to support their proceedings than this act, 'tis pretty plain they exceeded their authority, as the statute relates only to proclamations, and it is expressly provided, that the words, meaning, and intent of this act be not misunderstood, and that by virtue of it any of the king's liege people, so should have any of his or her inheritances, lawful possessions, *offices*, privileges, franchises, goods or chattels, taken from them ;" which word *office*, Collier says, " brings the lord chancellor's case fully within the saving of the statute." As if, after the statute was framed, the king by his councils (for the king and his council are to be regarded in the same relation to each other as the king and the two houses of parliament stand at present, the supreme legislative authority having been lodged, from the time of the conquest, not in the king alone, but in the king and the great council conjointly) could not deprive a lord chancellor of his office, to which no colour of right was ever set up, to justify the charge that it was hereditary.

Now the office of high constable was hereditary ; and Collier may be considered to have as much put aside the weight of argument and authority in his anomalous novelty respecting the office of chancellor, as if he had asserted that the king, by the advice of his council, committed an illegal act when he ordered the head of Edward, Duke of Buckingham, the then high constable, to be cut off, on the charge of high treason. Collier, too, seems quite to have forgotten, in his eagerness to convict Burnett of inaccuracy in his facts and reasoning, that this memorable statute or ordinance* of Henry gave the king's proclamation, to a certain extent, the force of an act of parliament, though long before it had been a settled point that no proclamation

* Some of our lawyers maintain, that broad lines of distinction are to be found between these two terms. Whitelocke, whose legal acquirements were qualified, not only to discuss, but to settle, this knotty point, has observed, " If there be any difference between an ordinance and a statute, as some have collected, it is but only this, that an ordinance is but temporary, till confirmed and made perpetual, and so have some ordinances also been."—See *Parliamentary Writ.* vol ii, p. 297.

was valid against them. At what period the jurisdiction of the council or star chamber* fell into disuetude, is a circumstance encumbered with some doubt. So early as the reign of Edward III. the parliament denounced its jurisdiction as contrary to Magna Charta and the known laws, and often directed to serve the most criminal views of ambition and avarice, sometimes in the clergy, and sometimes in the monarch, to whose iniquitous views it was made necessary. From all this being done, we are not surprised that under Richard II. it became the policy of the Commons to check and modify the extraordinary powers of the council, which at last, under the Lancastrian kings, was in some degree accomplished; and about that period, perhaps, the concilium ordinarium, the king's ordinary council, began to assume the forms of the concilium secretum, or privy council of state. But to suppose, with Collier, that the latter body, which, under the Tudors, so often potently interfered to deprive the subject, to his grievous discontent, of that most precious of rights, the trial by peers, could not remove a lord chancellor from his office, on the ground of its being hereditary, is plainly to form a very erroneous judgment on this question.

Those who are conversant with our early parliamentary constitution, and who recollect by what slow degrees the fabric of English liberty was reared, and for how long a period parliaments were used for no other purposes than as efficient and willing instruments in car-

* Blackstone, in alluding to the origin of the star chamber, specifies those abuses and oppressions connected with it, which so justly made it the object of hatred to the subject. “The star chamber was a court of very ancient original, but new modelled by statutes 3^o Hen. vii, ch. i, and 21^o Hen. viii, ch. 20, consisting of divers lords, spiritual and temporal, being privy councillors, together with two judges of the courts of common law, without the intervention of any jury. Their jurisdiction extended legally over riots, perjury, misbehaviour of sheriffs, and other notorious misdemeanors, contrary to the laws of the land. Yet this was afterwards, as Lord Clarendon informs us, stretched to the asserting of all proclamations and orders of state; to the vindicating of illegal commissions, and grants of monopolies; holding for honourable that which pleased, and for just that which profited, and becoming both a court of law to determine civil rights, and a court of revenue to enrich the treasury: the (privy) council table, by proclamations, enjoining to the people that which was not enjoined by the laws, and prohibiting that which was not prohibited; and the star chamber, which consisted of the same persons in different rooms, censuring the breach and disobedience to those proclamations by very great fines, imprisonments, and corporal severities; so that any disrespect to any acts of state, or to the persons of statesmen, was in no time more penal, and the foundations of right never more in danger to be destroyed.”—*Commentaries*, vol. iv, chap. 19.

rying the royal prerogative to the most despotic height, will pause before they acquiesce with Collier in regarding the following passage as a foul aspersion upon the purity and independence of the honourable House of Commons. "Gardiner, at that time the prime minister, had beforehand prepared them (the commons) by giving the most considerable of them pensions;" an assertion so far from being contrary to fact that it is indirectly confirmed by an observation of Heylin on the parliament of Edward VI. that "the cards were so well packed by Sir Ralph Sadler that there was no need of any other shuffling till the end of the game." It must strike almost every impartial reader as a most unconscientious contempt of truth and justice, on the part of Collier, to accuse the bishop of falsifying history, because he says that "one Beale informs us that, in many places of the country, men were chosen for Queen Mary's parliament by force and by threats; when this angry polemic could not but have seen, in such well-known books as Fox and Heylin, that it is there set forth that one John Hales made the same declaration in an oration before Queen Elizabeth." It would be tedious to rehearse the other specimens of Collier's acrimonious hostility against the historian of the Reformation. They are, for the most part, equally founded on misrepresentations and mistakes; the whole attack thus furnishing a lamentable proof of the sorcery of party spirit, which conjectures without modesty, judges without lenity, and defames without scruple.

M.R.S.L.

(To be continued in the next number.)

SKETCH OF THE STATE OF LITERATURE AND
EDUCATION IN DENMARK,*

PREVIOUSLY TO THE SIXTEENTH CENTURY;

WITH NOTES AND ILLUSTRATIONS.

THE Icelandic is the source of all the northern poetry: the Icelandic tongue once prevailed in Denmark, Sweden and Norway: it is the language of the Scaldic tales,† of the Saga legends, and of the Runic inscriptions. There came a time, however, when this sister of the German dialect, this queen of the Scandinavian regions, gradually abandoned the land over which she reigned without a rival, and retired to the school of Skalholt,‡ like a recluse carrying

* Mr. X. Marmier made a Report on this interesting subject to "*Le Ministre de l'Instruction Publique*," at Paris: it was dated at Copenhagen, January, 1838, and published in the "*Revue des Deux Mondes*," p. 507-522, for the February following.

† In the *Scaldatal*, or list of the *Scalds* of Denmark, Sweden and Norway, no less than two hundred and nine names are enumerated. This list is inserted in Snorro Sturleson's *Heimskringla*, or *Chronica Regum Septentrionalium seu Norvegorum*, danicé versa, a Petro Claudii pastore quondam Undalino primario, denuo in multorum gratiam revisa, continuata et prelo subjecta; 4to, *Hafniæ*, 1633. It also has a place in the Dissertation of Olaus Wormius de Priscâ Danorum Poësi which is appended to his *Literatura Danica antiquissima, vulgô Gothica dicta*; 4to, *Hafniæ*, 1636, et folio, Ib. 1651. The same curious document is preserved by N. P. Sibbern in his *Bibliotheca Historica Dano-Norvegica, sive de scriptoribus rerum Dano-Norvegicarum commentarius historico-literarius*: 8vo, *Hamburgh*, 1716. The saga legends, to the number of thirty-eight, are preserved in the poetic Edda of Saemundr the Sage, who was a native of Odde in Iceland, and afterwards priest of that parish. He was descended of a noble origin, and died in A.D. MCCCXIII: his life was long, laborious and useful, and his memory is cherished by the Icelanders with extraordinary veneration.

‡ Naddod a naval adventurer was driven on the coast of Iceland in the year DCCCLXI, by a storm; and, in consequence of this incident, he discovered an island which, in A.D. DCCCLXXV, furnished an asylum for the noblest families in Norway; which afterwards became a venerable seat of learning, where the songs and tales of the North were faithfully preserved; and which, for the long space of three centuries, continued to be a hallowed retreat of freedom and philosophy. While the island was yet being peopled, Skalholt rose to be its metropolitan city, and long enjoyed a high distinction as a seminary of education.

into his rural retreat the poetic fictions and "reminiscences" of his youth. Denmark was led thus to change the Scandinavian idiom, by her vicinity to Germany, and by intercourse with other people; and, of all the branches sprung from the same original language, the Danish has undergone the greatest alterations. In different parts of the kingdom, in Zealand, in Jutland, according to the differences of position and the diversity of external relations, the particular dialects arose which afterwards yielded to the Zealandic, in the same way as those of the several provinces in Germany were superseded by the "High German." From the day when this separation from Iceland became manifest, when the subjects of the kings of Roeskild, the inhabitants of Ripen and Odensee, began to speak a language which their brethren in Iceland did not understand, from that day commences the history of Danish literature.

In its early development, this Language was languid and slow. It must be closely traced through many ages, before the light breath of its vitality can be distinguished, the whispering of its tremulous voice can be understood. Whilst the young muse of the Middle Age awoke, amid the orange-groves of Provence and the oak-forests of Normandy; whilst, on either bank of the Loire, were heard the plaintive lays of the love-tale alternating with the lore of moral minstrelsy; whilst the spirit of poetry extended from clime to clime, penetrating into the warrior's dwelling-place and the priest's abode; whilst the minstrels, the "*minnesingers*,"* the Castilian bards with

* The first poetry—the *Provençal* or *Limosin*—among the European vernacular languages, was formed on either side of the Pyrenean mountains, near the delightful domains of the Arabs, the imaginative creators of chivalry. Sonnets, canzonets, tenzonets, idyls, villanescas, sirventes, madrigals and other forms of metrical composition, invented for witty questions and dialogues and envelopes for amorous epistles, gave occasion for a singular tribunal—the *corte de amor*—wherein ladies and knights, princes and kings, were concerned as parties and judges. Before this court, the "*Gaya Ciencia*," the science of the troubadours, was originally established, as a pursuit of the higher nobility; but, on its afterwards falling into the hands of *contadores* and *trueanes* and *bufones*, the story-tellers and jesters and court-buffoons, it became despised, neglected, inexistent. In the days of its early flourishing, the Provençal poetry had a softly harmonious and pathetic style which tended to refine the language and to polish the manners of its votaries. As has been said, it was the general parent of all modern European poetry: that of Spain, France and Italy, arose as its daughters: by it, Petrarch was tutored; and of it, he was emulous: the *Minnesingers* of Germany were its remote and harsh echoes, though the softest of her language is unquestionably theirs. Like other modes of minstrelsy, however, it ultimately degenerated: with the vagrant *jongleurs* of France and the vagabond *meistersingers*

their sonorous harmonies, and the Italian poets with their soul-dissolving effusions, were everywhere listened to with extravagant admiration; whilst imagination and melody received the homage of other lands, all in Denmark was darksome and silent. During this slumber of the intellect, never a poetic song arose, save that of the Scalds, composed in an obsolete tongue, and appertaining to a departed age. When Christianity had dispersed the fictions of a pagan theogony, modern language had not yet passed from its infancy, and the Danish people found themselves placed between the wrecks of their ancient religion and the incomplete structure of the new, between an established tongue that was disappearing, and an unformed language which they could not use. They were incapable of discerning a poetic element, and of creating the means of social improvement. Besides, they were entirely occupied with mere animal pursuits, to the exclusion of intellectual exercises. Warfare, piracy and traffic, were cherished by the resolute Danes for their poetry; and to them, occupations of this sort constituted the fountain of glory, the mainspring of life and exertion. This daring people despised every thing that tended to divert them from the scenes of an adventurous existence, and they reposed with a perfect serenity of soul in their ignorance and barbarism.

In studying the history of a nation's literature, the mind naturally suffers itself to be captivated by the splendour of brilliant epochs and the haloes of illustrious names. Nevertheless, there is a peculiar charm in descending from eminences visible to the ken of all beholders, to examine the intermediate spaces, and in stepping aside to retrace the humble foot-path that joins the highway, or the unheeded well-spring that oozes in droplets from a rock of granite, to become a 'mighty stream. Generally, there exists a correlative accordance between the favourite pursuits of man, during his vigorous manhood, and the direction given to them in the prime of his days. Such an accordance, also, has place in literature. With a view to know the "genius of humanity," we ought not only to scrutinize it in its epochs of glory, but likewise in those of its infancy and earliest effort. The former display its powers; the latter exhibit its perseverance. The former are brilliant as the noon-day sun in his full refulgence; the latter resemble the beams of

of Germany, the Lore of Love and Chivalry sunk into a despicable trade.—*Outlines of a Philosophy of the History of Man*; translated from the German of John Godfrey Herder, by T. Churchill; 4to, London, 1800; Book XX, Chapter II, p. 608-9.

morning over-veiled with clouds or obscured with mists, before it gradually shines forth effulgent, and disperses the darkness and the fogs with its energies of life and light.

Let us, then, endeavour to investigate the origin of Letters in Denmark, without being discouraged by their rude beginnings, their unsteady progress, their protracted obstructions. The inquiry will conduct us to true science, to genuine poetry.

Denmark, during the ninth, tenth and eleventh centuries, still remained a pagan country. Charlemagne, after having converted the fierce Saxon tribes to a profession of Christianity, more by the power of his sword than by persuasion, at last conceived the project of carrying his "evangelical" conquests beyond the Elbe. Death, however, prevented him from accomplishing his design; but, by Louis le Debonnaire, the scheme was completed. At the Council held at Thionville, in A.D. DCCCXXI, the resolution was adopted—*that the Christian Faith should be preached to the Northern nations.* Ebbo, archbishop of Rheims, voluntarily undertook to fulfil this mission, and applied personally to the Pope for instructions. The bull* granted to him by Paschal I, is the most ancient document having reference to this subject, now in existence. An unexpected circumstance occurred to enliven the zeal of the new missionaries. One of the kinglets who divided the Danish states among themselves, Harald Klak, the prince of Jutland, was discomfited in battle; and, being hardly pressed by his enemies, he fled to the successor of Charlemagne for protection. The pious emperor eagerly seized this as an opportunity favourable for making an available proselyte. He preached to the pagan fugitive, converted him, baptized him, and restored him to the sovereignty of his former dominions. When Ebbo arrived in the north, he found a patron in this disciple of Louis. Unfortunately, the petty prince of Jutland was unable, however willing, to sustain the Faith he had adopted; wherefore, after preaching some sermons and baptizing a few persons, the archbishop returned to France.

In his apostolical labours, Ebbo was succeeded by Ansgard, a monk of Corbeil. This devotee possessed youth, vigour and hardihood: he was animated with the virtues of a christian and the zeal of a missionary. He departed for the place of his destined ministry, accompanied by Authbert, one of his friends, who cherished, like himself, an enthusiastic anxiety for proselytism. After a tedious

* This curious and important "instruction" has been saved for useful reference, by bishop Pontoppidan, in his "Ecclesiastical Annals."

and painful journey through Germany, the two preachers arrived in Jutland, their ungenial destination. There, Ansgard energetically prosecuted his appointed enterprise: there, also, he was supported by Harald the Hapless, who caused the pagan temples to be overthrown, and their idols to be destroyed. But, enraged by witnessing these outrages on their religion, two young princes attacked Harald, and once more drove him from his kingdom. No longer finding encouragement in Denmark, Ansgard passed into Sweden, where the aged king, a descendent of Regner Lodbroc's, had manifested intentions favourable to Christianity. As the good monk was travelling, he fell into the hands of robbers who plundered him of the presents he was carrying to the king, and also of about forty volumes of books, which formed, in these days, no inconsiderable treasure. Ansgard remained a year and a half in Sweden, and enjoyed the satisfaction of seeing a church consecrated to the worship of the true God, in a heathen country.

This zealous ecclesiastic composed a life of Saint Villehad; and, in all its features, his work resembles the holy legends which other zealots so abundantly produced. He wrote another book which might, even now-a-days, prove highly important in furnishing materials for histories of the Northern nations. This was a journal of his journey through Germany, Denmark and Sweden. It is certain that this record of Ansgard's adventures is deposited in the library of the Vatican, but the utmost researches hitherto instituted for its recovery have been unsuccessful.

The germs of religious instruction sown in the North, by Ebbo and Ansgard, took effect only in some isolated places, and produced few results. In the year DCCCCLXXII, the territories of Harald Blaatand were invaded by Otho the Great, who assented to discontinue his aggression on the condition of Harald's submitting to be baptized. But the example of this prince was not extensively followed by his people. Existing as a nation of soldiers, ever occupied with war and piracy, they had little leisure to listen to the sermons of missionaries, and still less to reflect on their doctrines. Moreover, the new religion thus preached to them, the humble and peaceful religion of Christ, was not of a nature likely to win their attention. How could the law of mutual reconciliation be comprehended by men who regarded revenge as a pleasure and a duty: how could the law of justice be understood by herds of corsairs who spent their lives in plundering foreign coasts: how could the law of humanity be recognized by ferocious myrmidons, who caused the blood of man to stream upon their altars, as a sacrifice for deprecating misfortune

or for ensuring success! Odin, with his murderous lance; Thor, with his mace, the emblem of violence; these were the gods whose goodwill they propitiated; and, when their sages discoursed to them of the Valhalla,* with its eternal combats and its inebriating banquets dispensed by Valkyriar, all this to them constituted the Future; to them, it was their Heaven!

Another difficulty obstructed the propagation of Christianity among the northern people: this was their language. The French, English and German missionaries who successively undertook this beneficent office, were alike ignorant of the primitive Icelandic tongue and of the modern Scandinavian dialects. In A.D. MLXXVIII, Pope Gregory expostulated with the prince Harald Svendsson concerning this difficulty, and invited him to send some Danish youths to Rome, to be instructed in the principles of the Christian religion; and, on returning home, to explain these to their countrymen.

Like Julian the apostate, Svend Treskiæg the successor of Harald renounced the Christian faith, and endeavoured to restore the worship of idols. Nevertheless, in spite of the people's indifference to the precepts of the Gospel, and in spite of the impediments opposed to the zeal of missionaries, the voice of Everlasting Truth had gradually gained attention, and the Bible was adopted for the

* In the centre of Ida plain, that is the zenith of the heavens, the Æsir raised Valhalla, the chief abode of the Gods. Its roof is formed of glittering spears and shields; mail corslets are scattered over the seats; the wolf guards the western gate; the eagle hangs overhead. Thither the souls of the brave are invited to drink the good mead by Odin. They are served by celestial Valkyriar; listen to the harp of Bragi the eloquent; or pursue the exercises of war. Twelve other halls, answering to the signs of the zodiac, were also raised by the Æsir. Among these halls, were *Alfheim*, the dwelling of Freyr, the sun-god; *Breidablick*, the wide-shining palace, once the habitation of Baldur; and *Vingolf*, the hall of Freya, the moon-queen, where the Einheriar and Valkyriar, the pure on earth, join in immortal dances and enjoy the happiness of heaven. Odin, the all-father, the father of victories, daily selects from the dead those who, by their deeds and virtues, are thought worthy of Valhalla. His two ravens, *Hugin* and *Munnin*, memory and understanding, fly abroad every morning at daybreak and return at meal-time, when they whisper to Odin all that has taken place on earth, to enable him to make a worthy choice. The Valkyriar are his messengers to choose the slain on earth and to minister to them in Valhalla. The shooting stars were thought by the Northmen to be these Valkyriar, and their appearance denoted approaching battle. See *The Voluspa*, with a free translation and illustrative notes; by T. Smith, F.S.A. 8vo, Leicester, 1838, p. 19 and 35, — a remarkable Monograph, very highly distinguished by the purest literary elegance and the most judicious archaeological research.

rule of their faith and conduct by increasing disciples. When, in the year MXXIV, Canute the Great ascended the throne, the Christian religion had been well nigh established in Denmark. He now had only to maintain its ascendancy, and he possessed the means of accomplishing his purpose. Never was there, in the north, a monarch more powerful. He reigned, at the same time, over Denmark and England; and, on the death of Olaf the Pious, he assumed the sovereignty of the Norwegian dominions. Above the contemporary princes, Canute was distinguished for his wisdom and courage and humility. He built churches and endowed monasteries. With equal zeal, his Danish successors promoted the interests of Christianity. The worship of Odin was forgotten. In Denmark, as in other European countries, the clergy furnished their flocks with education. Secular knowledge found a quiet resting-place in the temple of God. Civilization emanated from cloisters and churches.

During his episcopate, Saint Ansgard established an institution for learning at Hamburgh, and twelve young Danes were admitted into it as pupils. This is the most ancient school in the North, as mentioned in history. There was another at Lund, in the twelfth century: in the thirteenth, one was founded at Ripen, one at Odensee, and one at Roeskild. These were capitular seminaries, superintended by bishops and regulated by canons: but, at Esrum and Soroe, others were conducted in the cloisters. All these institutions enjoyed particular endowments; but, for the most part, they were required to receive a certain number of free scholars. At Odensee, two bishops augmented the master's salary, and restricted him from educating poor boys. For such, however, Eric Menved* built a spacious house, and bishop Navne afterwards erected another. At the school of Roeskild, twelve students were gratuitously lodged, boarded and instructed in the principles of grammar and music. But these endowments were insufficient for the wants of many scholars; and, on those who could not obtain exhibitions, the privilege of soliciting eleemosynary largesses was conferred.

The same persons who founded establishments in cloisters for education, also founded libraries. These consisted of five or six vo-

* Eric Menved, says the chronicler, "construxit domum divitem pro pauperibus scholaribus." See *Scriptores Rerum Danicarum mediæ ævi*, partim hactenus inediti, partim emendatius editi; folio, 6 Vol. Hafniæ, 1772—1786; Vol. iv, p. 61. This valuable collection was edited by James Langebek and Peter Frederic Suhm, who added notes and introduced corrections of the text.

lumes; and, in that age, two or three prayer-books with a few treatises in theology, were regarded as a rare and valuable collection. However, by the twelfth century, several of the classical writings had found their way into the Northern regions. Bishop Absalom presented the school of Soroe with a copy of Justin's history. Valerius Maximus had been studied by Saxo the grammarian. In Denmark, nevertheless, it was the same as in other European kingdoms. Paper had not yet been invented: parchment was still scarce and expensive. Many of the monks experienced no scruples in erasing classic manuscripts, for the purpose of writing on them the monastic rituals. For this practise, these men have been often and severely censured; but, while they are thus obstinately charged with vandalism, ought not this vice of misinstruction to be much extenuated, as an offspring of the age in which they lived, and of the kind of education they received? How could the treasures of Grecian antiquity, the elegancies of Roman literature, how could these be rightly appreciated by poor priests secluded in their conventual schools, where a barbarous latinity was the best wherewith they were familiar? How could devotees who cherished an austere faith, who deduced its origin from a manger, how could they entertain much respect for the fictions of paganism, for the renown of Athens and her eloquence? What they themselves knew, that they cheerfully and assiduously communicated to the people; and how, then, could they impart higher revelations? The vandalism with which there is a custom of reproaching them, it was no fault of theirs: not theirs it was, but a defect of the age when they lived. At the time when Christianity was introduced into the north, when the clergy had to contend with the brutal manners and the impetuous vindictive character of a nation of soldiers, then it was that a prayer-book would prove infinitely more conducive to the progress of civilization, than the epigrams of Martial, the metamorphoses of Ovid, or Cicero's oratory.

Among all the Danish libraries, that of Lund is the most ancient. Bernard the canon, who died in A.D. MCLXXVI, presented it with many valuable books:* the canon Amund bequeathed to it a missal, a capitulary and a psalter: but, as a munificent philobiblist, the archbishop Anders Suneson† surpassed all his predecessors, in be-

* When recording this liberal donation of Bernard's, the chronicler uses the words, "multos bonos libros Ecclesie dedit."—See *Langebek's Collection*, Tom. III, p. 452.

† This generous prelate was a useful contributor to the literature of his country: it owes to him the *Leges Scanie Provinciales*, ante cccc annos, la-

stowing an excellent library on the cathedral of this city. His precious gift consisted of a Bible in three parts, the gospels, the pentateuch with copious annotations and corrections, books of maxims and allegories and morals, gloses upon the canticles, seven books of laws, bodies of canons, and many others, as enumerated by Langebek, who has preserved the catalogue.

Libraries were also founded in other cities of Denmark, in coëval times; and, during the fifteenth century, several individuals meritoriously occupied themselves in forming private collections of books. Thus, from the twelfth century, Science derived its two primary sources—the *Schools and the Libraries*. The number of students admitted into the earlier institutions, was yearly augmented. At the epoch of the Reformation, seven hundred pupils were prosecuting their studies at Ripen: to Roeskild, eight hundred had then resorted for instruction. At these cloistral schools, the children of the nobility, as well as those of the commons, were educated. Christiern II was a scholar there, along with the sons of citizens; and, like them, the prince was taught to chant in the reading-desk.

Now, with regard to the pupils disciplined in these seminaries, to what irksome tasks would the best feelings of youth be frequently subjected? What, too, could be the fruits yielded by the long years devoted to such studies? At these institutions, all the prelections were delivered in an impure latin, abounding with solecisms. At one time, the scholar who found himself qualified to read, to explain a few passages in the Bible, and to chant the psalmody, had acquired high claims to the distinction of a learned character. With the twelfth century, however, there outglimmered a twinkling of intelligence. At that period, Absalom was bishop of Roeskild and the prime-minister of king Valdemar, having Saxo the historian for his secretary. But this light proved no better than a flickering gleam: it soon disappeared, and left Denmark to be dazzled with the deceitful glitterings of a counterfeit science.

Before the close of the thirteenth century, all the traces of true

tine redditæ; 4to, Hafniæ, 1590; and *Jus Selandicum xvii libris*; 4to Hafniæ, 1592. Both these works were edited and illustrated by Harald Huitfeld, an eminent Danish historian and chancellor of the kingdom. In his youth, the archbishop visited England, Germany, France, and Italy: he graduated as Doctor of Laws at the university of Paris: on returning to Denmark he obtained the office of chancellor to Canute VI; who despatched him on an embassy to Rome in the year *mcxcv*: his was a very busy life, being constantly engaged in important civil, military and ecclesiastical concerns.

learning, obtained under Valdemar I and Canute VI, were utterly extinguished. No one then thought of exercising his mental powers in scanning the sublimities of mental science, or in conning the niceties of philology. From the schools, the poets and the rhetoricians, the ancient historians and the first philosophers, were altogether banished. Saxo's venerated favourites—Valerius Maximus, Lucan, Juvenal, Statius—all were buried in the dust: they were superseded by *Summulæ*, *Sententiæ*, *Cursus Logicales*, *Quodlibeticæ*, and similar fantastical compilations. The whole course of study was employed upon the canon-law and dialectics; or rather, as Luther observed, upon sheer sophistry, for every body had his attention engaged with trifling and subtlety.

At this epoch, the list of books used in the Danish schools by the pupils, affords an idea of the nature of their studies. Here it stands. I. The *Doctrinale*; a latin grammar, in hexameter verse, by Dr. Alexander Villadeus.* II. The *Græcismus*; another latin grammar, by Eberhard de Bethune. III. The *Labyrinthus*; by the same author: it formed a sort of system of rhetoric and poëtics. IV. *Æquivoca*; of these, here follows an example. By a mystical rhetorician, the *Earth* is denominated hell, a virgin, god, eternal life and human flesh, and he supports these various assertions with passages from the Bible. Thus, the earth is *Hell*, because you find in Job, "*antequam vadam ad terram tenebrosam*:" it is a *Virgin*, for it is written in one of the Psalms, "*veritas de terra orta est de virgine*:" it is *God*, because in the Scriptures it is said, "*dic tibi terra levem caeli supereminet opem*:" it is *Eternal Life*, for in the Psalms it is declared, "*portio mea Domino in terra viventium*:" and the earth is *Human Flesh*, because in Job there is the declaration, "*terra data est in manus impij*." Such were the paralogical exercises whereon the Danish youth misemployed their time and intellectual energies, during the middle ages. V. The *Synonimorum Liber*, an ingenious attempt to distinguish the different words which have the same signification. VI. The *Composita Verborum*, which would find a place under the head of Etymology in a modern grammatical system: this article and the two preceding were composed

* "*Alexandri Galli, seu de Villâ Dei, Doctrinale, sive grammatica latina metricè scripta*," was in common use in the Schools, and it passed through more than fifty impresssions before the end of the fifteenth century. The "most esteemed" edition of the *Doctrinale* is that of Venice in folio, with the types of John de Spirâ, between the years 1470 and 1473: it forms a Tract composed of forty-five leaves.

by John de Garlandiâ,* who attained very high distinction in the eleventh century. VII. The *Writings of Donatus* the grammarian, whose book on the eight Parts of Speech continued in use till about the middle of the last century. VIII. The *Danish Proverbs* of Peter Lollius, accompanied by a latin translation in leonine verse. IX. *Facetus*, a code of instructions, by proverbs, for grounding the manners of young persons: it is a silly and vapid medley, compiled in latin verse.

This class of books was interdicted by Christiern II in the fifteenth century; and, in their stead, came the following. I. The *Fundamentum in Grammatica*, composed by Peter Albertsen the vice-chancellor, who selected the best parts of the *Doctrinale*, the *Græcismus* and the *Labyrinthus*, with a degree of judgment which

* John Garlande was an Englishman by birth, but the place of his nativity and the time of his decease have escaped the researches of biological historians. About the middle of the eleventh century, he retired to the Continent with a view to avoid the miseries resulting from the savage and incessant aggressions of the Danes, who were then devastating the fairest portions of England, Scotland, and most of the British islands. He gave prelections in logic and philology in the schools of Paris, Thoulouse, and other places; and, at the same time, he found leisure to compose many of his poetical and scholastic productions, and to write several essays in English history. There is probability in the conjecture that he returned to his native country, after William the Norman had established his pretensions to the English throne. Some brief sketches of this celebrated dialectician were collected, from the accounts of earlier biographers, by bishop Tanner, who inserted them in his "Bibliotheca Britannico-hibernica," p. 309-10. The grammatical treatises of John de Garlandiâ were all printed previously to the end of the fifteenth century, and this circumstance is evidence of their extensive popularity. *Interpretatio Vocabulorum Æquivocorum* appeared in 1486, with a commentary by the editor: the *Composita Verborum* issued from the press of Gerard Leen at Antwerp, in 1486: and the *Synonyma* came forth, in a first impression, at Reutlingen, in 1487, in a quarto size. Wynkyn de Worde gave editions of the "*Æquivoca*" and "*Synonyma*," with the following titles. *Multorum Vocabulorum Æquivocorum interpretatio Magistrii Johannis de Garlandia grammatico et Latini cupido permaximé necessaria*; 4to, Londini, 1499, 1505, 1510, and 1517. *Synonyma Magistri Galfridi Anglici nupervimé correctâ*; Londini, 1500, 1505, and 1510. This last was printed by Pynson, 4to, Londini, 1496, 1500, and 1509: the former came from the same press, 4to, Ib. 1514. The *Facetus* is sometimes represented as one of John de Garlandia's productions: it is frequently bound up with his poem on Contempt of the World; 4to, Lugduni, 1486. Galfrid the Englishman, who expounded John de Garlandia's *Synonymes* and *Æquivocals*, was a native of Norfolk or one of the adjacent counties; his surname was Starkey: he became a Dominican friar, and wrote a "*Medulla Grammatices*" and other philological books: he "flourished" in the last half of the fifteenth century.

was approved. II. The *Epistolæ Magni Curci*, which were fictitious letters interspersed with historical and geographical sketches. III. The *Fasciculus Morum*, a bundle of breeding, from the cogitations of Henry Boort: it was printed at Cologne in 1517. IV. The *Horticultus Synonymorum*, a garden of synonymes, "laid out" by Henry Faber, and printed at Copenhagen in 1520. V. The *Vocabulorium ad usum Ducorum ordine literario cum eorum vulgaria interpretatione*, printed at Paris in 1510.

Such were the class-books which, in these days, the youth of Denmark were obliged to study; and Wormius* affirms that the period of their discipline extended from fifteen to twenty years. At the end of this tedious probation, those students who had become old in the investigation of scholastic sophistry, they became eligible to the priesthood or the magistracy; but their progress in the *Doctrinale* entitled them only to recommendation for inferior offices. Generally, the nobles enjoyed greater privileges than the common people. The former held the best prebends; and, in order to the obtaining of rich benefices, upon which the eyes of every scholar were fixed, the nobles were not required to learn so many hexameters, nor to penetrate so deeply into the philological mysteries of the *Labyrinth*, nor to distinguish so nicely the ingenious combinations of the *Synonymical* garden. They belonged to the order of Nobility, and their rank was nearly equivalent to a bachelor's degree. In the

* Olaf Worm deservedly attained the highest distinction, both in Literature and Society, as a scholar, an anatomist, a naturalist, a physician and antiquary. He was born in the year M^DLXXXVIII, at Aarhus the episcopal city of Jutland: his death took place at the Danish metropolis in M^DCLIV, in the sixty-seventh year of his age. Having completed an extensive course of education at the universities of Giessen, Marburgh, Strasburgh, Bâle, Padua and Montpellier, he devoted some time to journeys of observation through Holland, France and Germany: he made two different visits to England, for the sake of improvement; and, at Bâle in M^DCX, he obtained the doctorate in medicine. In M^DCXIII, he returned to his native country; and, on fixing his residence at Copenhagen, he successively discharged the important duties of a Professor of Greek, of Natural Philosophy, of Physic, and of Court-physician to Christiern IV, his sovereign. The well-merited celebrity of "Olaus Wormius," as his name is latinized, reposes securely on the acknowledged usefulness of his numerous and elaborate writings. From the results of his varied and successful researches in natural history, anatomy and northern archæology, Science derived accessions both of discovery and improvement. His *Fasti Danici*, folio, Hafniæ, 1643, and *Runica, seu Danica Litteratura antiquissima*; folio, Hafniæ, 1652, affords information regarding the studies of youth, in the northern universities, previously to the middle of the seventeenth century.

literary history of Denmark, there is mention of a canon who was so illiterate as to be incapable of signing his own name.

During the twelfth and thirteenth centuries, the University of Paris* maintained the highest celebrity, all over the world. The reputation of a Lombard, a Champeaux, an Abelard, constantly attracted crowds of foreigners to its schools; and, as the philosophers then expressed it in their extravagant diction, the Parisian University was the choicest gem in the jewel-house of Christ, the arsenal wherein were fabricated the armour of faith and the sword of the spirit! It was the key of Christianity, the paradise of the Catholic church, the temple of Solomon, the holy Jerusalem, the tree of Life in the garden of the World, the resplendent lamp of the House of God! The Rector of this University took precedence of ministers, barons, counts and cardinals: his dignity placed him next in rank to the pope and the king. They who had studied at Paris were ever after reputed as philosophers: whoever took the degree of M.A. there, he might aspire to the highest honours; he was addressed by the style of "*magistratus excellentia*," sometimes by that of "*venerabilis magistrorum majestas*," and not unseldom even by that of "*deitas*," in illustration of hyperbolical impiety. Many Danes frequented this university, and four of them—*Henningus de Dania* in MCCCXII, *Petrus de Dania* in MCCCXXVI, *Johannes Nicolai* in MCCCXLVIII, and *Manaritus Magni* in MCCCLXV—acquired the dignity of its rectorate. The Danish scholars constituted a part of the *Natio Anglicana*, and they resided in a house assigned to them in the vicinity of the Sorbonne. In the fifteenth century, every chapter in Denmark was required to send one or two students to Paris; and, at that time, it was said of Stangberg bishop of Ripen, that this learned man, the friend of learned men, enacted and established as a law, with consent of the chapter—that no person should be admitted into the order of Canons, unless he had studied diligently for three years in some distinguished university.

These remote pursuits, however, did not prove so beneficial to the interests of Science as might have been expected. Already had the "universitary" philosophy of Paris fallen into a false direction; for, instead of being applied to erudite researches and serious discussions it was prostituted in support of the most pitiful controversies, of the

* E. C. BULÆUS.—*Historia Universitatis Parisiensis*, a Carolo imperatore A.D. DCCC, usque ad annum MDC; folio, Vol. I et II, Parisiis, 1665; Vol. III, Ib. 1666; Vol. IV, Ib. 1668; Vol. V, 1670; et Vol. VI, Ib. 1673. In the phraseology of Bibliographers, "this is a Work of extreme rarity."

emptiest conceits and cavilings of a puerile "scholasticity." There was a time when he who aspired to pass for a scholar and a gentleman, was not obliged to understand the Greek philosophers and the Roman historians: his were held for rare accomplishments, if he had dabbled in the *Entitates* and *Nominalitates*, and other no less sublime conceptions. In that age, such questions as these were propounded and seriously discussed. Whether any thing was God, or God was any thing? Whether God could know what he did not know, or could not know what he did know? Whether it was a greater sin to massacre a thousand men than to rob a poor man of a pair of shoes? Whether the pope can abolish the doctrine of the apostles? Whether his holiness can exercise authority over the angels? Whether, when Lazarus was raised from the dead, his heirs were obliged to restore his patrimony? Thus it was settled, that the man must be a sage, who excelled in arguing on these preposterous sophistical notions, who could most dexterously reduce his adversary to an inextricable dilemma, or embarrass him with a sophism, or escape from him by an evasion. When, therefore, the poor Danes went so far in quest of those wonders of science, it need really be no hard matter to believe that their travels contributed little to the advancement of intelligence, in the land of their birth. Besides, many of them would be attracted to Paris much less by a predilection for knowledge than by a desire to visit a city where, during the twelfth century as in modern times, the spirit of fashion and frivolity sat enthroned. Hence, instead of attending lectures at the Sorbonne, the young deluded northmen would frequent theatres, taverns and clubs, and then return to their families, like Holberg's "*Parisian John*," with a ridiculous itching for exotic pleasure and a profound disdain for native enjoyment.

Better prospects began to open upon Denmark, in the fifteenth century. In A.D. MCCCCLXXIV, after visiting Rome, Christiern I obtained a papal bull for founding a university at Copenhagen. He then wrote to all the bishops in his kingdom, directing them to promote the interests of the new institution. He himself undertook its especial patronage; and, with a view to this patriotic object, he appointed Peter Albertsen, one of the most learned men of the age, to be its vice-chancellor. In the year MCCCCLXXVIII, Albertsen travelled into Germany; and, at Cologne, he engaged several professors to accompany him to the Danish capital. The university was consecrated on the sixteenth day of May, MCCCCLXXIX; and, with a view to increase the number of students, King John prohibited his Danish subjects from entering any foreign school until

they had completed a three years' course at his metropolitan university. Christiern II renewed this interdiction. These expedients, however, proved unavailing. The institution, being inefficiently provided with professors, and also inadequately endowed, it gradually declined; and, in the sixteenth century, its operations were entirely paralyzed by the intestine disturbances which then agitated the kingdom. From MDXXX to MDXXXVII, no rector was elected: the scholars abandoned their studies: the professors deserted their chairs: the university was forsaken; and it did not recover from its depression, until the Reformation had re-animated the energies of intelligence and morality and religion, among the nations.

Whatever might be achieved in the rest of Europe, for the diffusion of Science, its advances in Denmark were tardy and limited. Half a century had elapsed since Guttenberg discovered the divine processes of Printing, and yet at Copenhagen there were only manuscripts. Albertsen presented to the university a library comprising twenty volumes, and this was deemed a valuable collection. He also induced Gottfried van Ghemen, the printer, to settle in this city, and the *first* piece of Danish typography was a latin grammar,* with the date MCCCCXCIII: the second appeared in MCCCCXCV; it is a chronicle in rhyme. Printing-presses were also established at Odensee and Ripen; but, during the greater part of the sixteenth century, most of the Danish books were printed in foreign countries, at Paris, Cologne, Antwerp, Leipsic and Lubec, and these publications were chiefly rituals, mass-books, and some romances relating to chivalry.

During the progressive changes in scholastic study, the Danish language experienced few improvements. Its separation from the Icelandic commenced in the eleventh or twelfth century. Gramm,†

* Gottfried van Ghemen is the only typographer known to have exercised the Art of Printing, in the capital of Denmark, during the fifteenth century. Among the productions of his press, in this city, the *first* was the latin grammar here specified. It bears the title and date, *Regule de Figuratis Constructionibus Grammaticis*; 4to, Hafniæ, MCCCCXCIII. The *latest* work, hitherto ascertained to have been printed by him, is variously intituled—*Nigels van Soré Danské Kræniké*, *Chronicon de Regibus Daniæ vernaculum et rhythmicum*, *Fratri Nigeli Chronica Danica*, *Niel's Metrical Chronicle* and *Den Danské Riimkræniké*, as mentioned in a subsequent note. It is dated, Hafniæ MCCCCXV.

† John Gramm was a very learned philologist, antiquary, and historian. He died in 1748, in the sixty-fourth year of his age. His researches, judi-

indeed, refers this separation to an earlier period. He supposes that some difference always existed among the three Scandinavian dialects, united under the generic name of *Torræna Tungu* or of *Danska Tungu*, and his conjecture is not improbable.

The most ancient monuments of the Danish language bear no higher date than the twelfth century. These are, the ecclesiastical ordinance of Scania in *MCXLI*, and that of Zealand in *MCLXX*: but the manuscript of these ordinances is dated in the thirteenth century. Towards the conclusion of this century, Henry Harpestreng* composed a book on medicine. In the earliest applications of the new language, its Icelandic origin is abundantly apparent: it exhibits the same terminations of words, the same forms of diction. With regard to the elementary structure of the language, it is almost pure Icelandic; but the orthography had undergone an important change. Thus, the Danish speech advanced step by step, resting on traditional rules: ultimately, it was essentially modified by the German, from which it borrowed new modes and new words. These modifications chiefly distinguish it from the Icelandic, in modern times.

Four centuries elapsed before the Danish acquired a character sufficiently determinate to fit it for becoming a literary language. From their being engaged in perpetual wars and adventurous expeditions, the people did nothing towards promoting its development. At their courts, the ancient kings retained pilgrims only and scalds, who entertained their hearers with recitations from the sagas, or with songs in Icelandic verse. The priests and monks used nothing but latin: they concerned themselves exclusively with exercises in that tongue. Subsequently, the kings ceased to speak the Icelandic, and adopted the German language; and, from the fourteenth century onwards, the influence of Germany continued to increase. Eric of Pomerania and Christopher of Bavaria and Christiern I the head of the reigning dynasty, all three were Germans. The first professors of the metropolitan university, and the first printers in Denmark, were brought from the German states. Whilst the learned persisted in using the latin, the German tongue prevailed among all

ciously devised and skilfully accomplished, have proved eminently conducive to the elucidation of northern archæology.

* Whatever might have been the advantages derivable from Henry Harpestreng's book of medicine of the ancient Danish dialect, these would necessarily be limited, by reason of the works remaining in manuscript. As an author, this person's importance is unnoted in medical history.

other classes of society. Saxo* wrote a history of his country in admirable latin; and, as the highest offices in the state were held by ecclesiastics, the laws were written in that language, so late as the sixteenth century.

The first royal proclamations composed in the Danish language, are dated in the fourteenth century; but, not before the fifteenth, did the clergy begin to use calendars and prayer-books in the vulgar tongue. To the same epoch, are referred the versified *Proverbs* of Peter Lolliust† and Niel's *Metrical Chronicle*, two of the most ancient relics of Danish poetry; but a biography of Peter Lollius is altogether in-existent—so completely has the literary history of this period been neglected. Since it is unknown where he lived, two

* Saxo was a Dane by birth, an ecclesiastic by profession; and, from his excellent attainments in learning, he derived the honourable designation of *Grammaticus*, the grammarian. While engaged in the discharge of his peaceful duties as a priest in the cathedral of Roeskild, and under the fostering countenance of Absalom his bishop, Saxo compiled his history of Denmark and its dependencies. His great prudence and distinguished talents, combined with exemplary piety, led to his being deputed on a mission to Paris, in A.D. 1161, for the purpose of inducing some of the Gallican monks to visit his native country, and to assist in reforming the discipline of her religious orders. This justly venerated personage became one of the brightest ornaments of the twelfth century: he died in the year 1161, at an advanced age. Saxo's History bears a high reputation for the purity and elegance of its latinity; his statements and opinions are regarded as authorities, for their general accuracy: even his imaginative embellishments are respectable, for their liveliness and beauty. His work has passed through several editions, with the title, *Danica Historia*, libris XVI, annis ab hinc trecentis quinquaginta, summa gravitate, rerum denique admiranda varietate, intermixtis aliarum quoque Gentium historiis, conscripta: folio, Parisiis, 1514; Basileæ, 1534; Francofurti ad Mœnum, 1576; Soræ, 1644; and 4to, Lipsiæ, 1771.

† The first and second of these Proverbs are taken literally from the legal code of Jutland. According to the scanty information afforded by Bartholin, in his *Bibliotheca Danica*, p. 119, 383, Peter Lolle was a "legifer," magistrate or provincial judge, in the province of Zealand, and his Collection of Proverbs has the title, *Adagia, Danicé et Latiné*; 4to, *Hafniæ*, 1508; 4to, *Parisiis*, 1515; 8vo, *Aarhusii*, 1614. In Moller's Appendix to the *Bibliotheca Danica*, the following notes concerning Peter are inserted. Petrus Lollé, Laalandus, a pueritia in exercitiis scholasticis apud Roschildenses diu versatus, tandem rebus politicis animum adjiciens, prudentiâ et eloquentiâ mirum in modum excelluit, adeo ut ferendis legibus et dijudicandis causis publicis adhibitus omnium admirationem, et *Legistæ* cognomen meruerit. Collegit et, pro ejus ætatis eruditione, *Parœmiæ* Danicas latinitate donavit. See the "Historia Danica of C. C. Lyscander; folio, *Hafniæ*, 1622. Niel's *Metrical Chronicle* is the "*Danske Rimmkrønike*" afterwards noted.

Danish philosophers endeavoured to discover where he was buried ; but all that they ascertained concerning him is—that Peter Lollius flourished in the fifteenth century. From the laws of his country and the traditions of its people, Peter collected those moral apophthegms, those practical maxims, which the Arab teaches his sons, which Odin chanted in the Havamal, and which still survive at the two extremities of the globe, in the balmy harbours of the East and in the gloomy grottoes of the Northern forests.

These Proverbs are remarkable for their terseness and simplicity. Sometimes, a perfect moral sentiment is expressed in one single verse ; occasionally, it occupies two : rarely, does it extend to more. Peter Lollius arranged his Collection of Proverbs in alphabetical order, and translated them into a barbarous and frequently unintelligible latin version. On its first appearance, his book obtained extraordinary popularity. It was admitted into all the schools, and became a regular class-book. Nevertheless, Christiern Pedersen complained grievously that he was obliged, even in the sixteenth century, to waste the most precious days of his youth, in studying this piece of “detestable latinity.”

“*Den Danske Rimekrønike*,” the Danish metrical chronicle,* was the production of a monk of Sorøe,† who lived towards the end of the fifteenth century. This rhymers’ object was, to produce a more popular history of Denmark than any then in existence. That of Saxo’s was freely used by him, and he unhesitatingly adopted it, from beginning to end. Where this work failed him, he borrowed his relations from the latin annals ; but, instead of translating the narratives of his predecessors, or like them recording events, he essayed to give his book a dramatic arrangement. By this method, each of the kings is brought on the stage in succession ; and, as an actor, he describes the incidents of his own life, his projects and his achievements. This sort of soliloquy yields a temporary gratification, but it soon becomes irksomely monotonous. In other re-

* This *Danish Chronicle*, in rhyming verses, was first published in A.D. mcccxcv ; and, in 1825, M. Molbeck edited a new edition, to which he added an introduction and glossary.

† This was brother Nigel, Niel or Black, who composed his original rhyming chronicle in the Danish language. Here follows its latinized title, “*Fratris Nigeli Chronica Danica, omnium regum Danicæ vitæ, facta et bella a Dano usque ad Christianum I complexa ; reperta in prælio et clade Danorum ad Hemmingstedam in Dithmarsia, die 17mo Februarii, A.D. MD.*” — See the *Bibliotheca Historica Dana-Norvegica* of N. P. Sibbern, p. 29, and the references there cited.

spects, the "*Riimkrænike*" is destitute of value, both as a poem and a history. It merits attention merely for its language, as a sketch for comparison with subsequent writings.

Mikkel, an ecclesiastic of Odensee, acquired considerable celebrity for his religious publications. He composed several poems, and one of these was a lengthy Lay on the Virgin's Rosary.* He chanted the lady's bunch of beads with the fervour of a pure papist; he extols the advantages of tithes with exquisite ingenuousness; and he lauds the Virgin with a warmth of love and veneration seldom exceeded in the mystical adorations of the "*Minnesinger*." This poem makes the Virgin enter into a colloquy with a monk, to whom she observes—"If you were to be shut out of heaven for your sins; if God himself were to swear that you should not be admitted there, I myself have still the power to be your saviour, but you must prove to me a faithful servant. I can interpose between Him and the transgressors, before their condemnation is determined. I can prevail on Him to create a new heaven." Further on, she adds—"When any one has committed an iniquity so great as to require his banishment from the presence of God, if the sinner shall read the Psalms of the Virgin with devotion, I will come to his succour and restore him to the favour of God." But a passage concerning the payment of Tithes is the most remarkable. "Pay faithfully," it says, "the tithe that thou owest to the priest and the church: if thou failest in this duty, the judgment of God will condemn thee; upon thee, His anger will fall: thou shalt witness the death of thy swine, thy oxen and thy sheep: the land which thou tillest shall be struck with sterility; and, after thy tillage, nothing shall grow save thorns and thistles. If thou failest to pay thy tithes, every plague will fall upon thee; thy friends will forsake thee; thy children will pursue the paths of iniquity, and thy first-born will be hanged: all the joys of this world will be denied thee, and thou thyself shalt be hurled into hell."

For the age in which he lived, Mikkel displayed a wonderful facility in the art of composition. His verses are flowing and harmonious; and, in correctness of language, he surpassed his predecessors. With regard to the powers of conception and imagination, his

* This ancient poem is written in Latin and Danish: it has the title, *Expositio pulcherrima super Rosario Beatæ Mariæ Virginis: Her begynder en Meghet nytthelig bog om Jomfru Marie Rosenkranz*: it was printed in the year MDXV.

position is secondary ; but, in respect to style, he deservedly ranks at the head of the Danish poets, his cotemporaries.

About a score of years afterwards, and in the same city of Odensee, there arose another poet whose name ought to be distinguished among those eminent persons who have struck out a new course and indicated a new style. This ingenious person was no other than the schoolmaster Christiern Hansen, who attempted, the first in Denmark, to establish theatrical entertainments.* He wrote three scenic pieces, partly humorous partly serious, whereof the subjects are evidently borrowed from the ancient German dramatists ; and, by its rudeness, his composition throughout betrays a palpable lack of experience. His first piece bears for its title, "*The Story of a Man who outwitted a Woman, with the help of a Dog,*" and ten characters act their assigned parts in the representation. One of them, Præco, opens the affair with a prologue designed to arrest the hearers' attention, and the orator concludes with a moral induction. Instantly after this, a wealthy citizen makes his appearance ; and, although newly married, he is ready to set out on a pilgrimage, and bids adieu to his bride. Scarcely has the good man taken his departure than the wooers of his wife present themselves at her door. First of all, a boorish neighbour advances, and bluntly prefers a declaration of love to the lady, without having recourse to rhetorical professions. The young wife disdainfully repels him. She is next addressed by a monk, in prim and pretty phrases ; and he is succeeded by a courtier who makes the most magnificent promises. But the bland flattery of the one and the other's superb protestations alike prove unavailing ; the monk retires in despair ; the courtier goes in search of a sorceress, and hires her to enchant the fair dame of whom he declares himself enamoured. Forthwith to her aid, the hag invokes the infernal spirits ; but, as she is then only a novice in witchcraft, the devils hold her in derision. Feeling annoyed,

* This observation must be considered as referring, in a limited sense, to dramatic writings composed according to definite rules ; for, it is certain that the Danes, the Swedes and the Norwegians had long been acquainted with that sort of scenic exhibitions whereof traces are to be found in the early history of every people. The Edda speaks of the harlequin whom Gylf met at the Gate of the Gods ; and Snorro Sturleson relates that king Huggleik retained harpers, conjurers and minstrels, at his court. Several poems of the *Kæmpeviser* may be regarded as dramatic compositions which were recited with a sort of theatrical accompaniment. In Sweden anciently, the *Lakaré* were attended with music and pantomimes.

the courtier takes to blustering ; and, having lost confidence in her old friend Beelzebub, the profligate hireling has recourse to another expedient. She takes a vile, ugly black dog ; and, weeping ruefully, she presents herself before the inflexible bride. "What have you got here, my good woman?" the lady inquires sympathizingly. "Alas, Madam!" the siren asseverates, "I have met with a dreadful misfortune. Believe me! I had a charming daughter, the most beautiful, the most affectionate, the most delicious young damsel, the eye ever beheld. Well! a young gentleman pays his addresses to her ; she declines the offer ; he persists ; she remains inflexible ; and, in order to be revenged, the lover procures her being changed into a dog. There," she exclaims, in pointing to the hideous brute beside her, "there stands my poor dear child!" "O Heavens! is it possible," cries the new-married wife, "that when a woman rejects a declaration of love, she incurs the risk of being transformed into a beast?" "Nothing is more certain, Madam ; every day, the same thing occurs." "Ah me! how unfortunate! Why, this very morning, I have rejected a man of fashion, every way accomplished, and abundantly amiable." "Send for him instantly," cries the betrayer, "otherwise there is no knowing what may happen." The gentleman re-appears ; the piece finishes ; and the audience separates, delighted and edified with so profound an artifice for deceiving a silly woman.

Hansen's second essay is the "*Judgment of Paris*;" and it is nothing other than a combat of coquetry by three goddesses, who strive to gain the preference of a youthful shepherd. Juno promises him sovereignty : Minerva engages to endow him with wisdom : and Venus undertakes to delight him with the enjoyments of love and beauty. Paris is young, and sighs not for the sweets of power : neither does he languish for the excellencies of wisdom : he pronounces the charms of Venus to be incomparable, and accepts her promised boon. Juno regards his award with scorn, and withdraws, uttering threats of vengeance.

The Schoolmaster's third lucubration bears the title, "*The Life and Death of Saint Dorothy*;" and this is a "Mystery" founded on a play often acted in France and Germany, during the sixteenth century.

In these dramatic productions of his, the worthy "Dominic" of Odensce merits little commendation on the score of invention. Here and there, however, he sketches some interesting representations of manners, and doles out a few racy reflections. Otherwise, his verses

are generally rather polished, and his diction indicates advancement in the culture of his native language.

Whilst Christiern Hansen was thus endeavouring to establish the "dramatic art" in Denmark, an anonymous writer translated the romances of chivalry, the "*contes plaisans*," the tale of Ruus, and the "*histoire galante*" of Flores and Blantzeflor.

Ruus is one of those bitter satires which the "Middle-Age occasionally launched forth against the monks, by way of vindicating its independence at the very time it was playing the disciple." The author of Ruus relates how, one day, Disorder found his way into a monastery, Disobedience raised his front before the altar, and Depravity unlocked the cellars. For a length of time, the devil had kept a vigilant eye upon the saintly brotherhood; so, he concluded that this was an excellent opportunity for catching a cluster of souls, and that it would be a great shame were so good a chance suffered to escape. Behold, then! the arch-hypocrite puts himself into livery, assumes a respectable appearance, hastens to the abbey, and solicits the place of a domestic servant. The abbot interrogates the false menial, who produces satisfactory testimonials concerning his qualifications, and is engaged for cook to the establishment. What marvellous management of the sagacious abbot! Well, from the hour that the devil "*posa la main sur les fourneaux*," the whole convent shone like a guild-hall at the time of an illumination. From that day forwards, adieu to fasts and penance, adieu to vigils and meagre diet. The skilful cook entirely proscribed the insipid fare enjoined by the monastic regulations, declaring it to be altogether unworthy of attention. With the design of exciting the impaired appetite of his masters, and of prolonging the time of their repasts, he provided well-spiced condiments, and invented endless refinements. At early morn, the fire of hell crackled in the kitchen: the tables groaned under the weight of substantial hams and haunches of venison; and, throughout the day, the cellar was open. There, sat the monks roaring over their bacchanalian orgies; and the devil, who treated them so handsomely, soon perceived in their increasing rotundity that his efforts were not fruitless. Several months glided in this state of delicious indolence; and the cook, who had so nicely played his part in the instalment of laziness and revelry at the abbey, he began to fancy himself entitled to a recompence. Imp-like and impudent, he demanded to be made a monk; and, though a devil as he was, a monk they made him accordingly. He received the cowl between two butts; and, thenceforward, Brother Ruus became

his designation. For this once at least, the miserable monastery fell entirely under the devil's dominion. The choir was abandoned; neither prayer nor holy chant were now heard in the church: brother Ruus over-ruled the abbot, and brother Ruus governed the monks also: he tumbled by day, and he played the rake by night: he experienced a particular pleasure in exhibiting the cowl and the cassock where they ought never to be seen. When he performed excursions through the country, his presence proved a great misfortune to every house he visited, and to the peasants with whom he stopped to talk. His envenomed breath disspread a moral poison around him, and he rarely entered a hamlet without exciting a quarrel or committing a cruel theft. One day, however, brother Ruus fell a victim to his own knavishness. He stole a cow from a poor peasant who had no other property in the world. For a whole day, the unfortunate man vainly sought for his cow every where, in the valleys and on the hills. At night, on finding himself wildered in the mazes of a forest, he took shelter in the hollow trunk of a tree. At his feet, with surprise, he perceived a subterranean passage: he descended the mysterious way: and, after wandering onwards for many a weary hour, he arrived at the gates of hell. The time was a day of solemn audience. Satan was then seated on his throne, and his emissaries to earth were then assembled to render an account of their proceedings. Some of them had stirred up a civil war: some had created discord in families: others had fostered a delight in robbery, encouraged blasphemy, promoted sacrilege. At these tidings, the king of Pandemonium sometimes grinned a smile most horrible, and sometimes he coaxed his minions with an approving nod. Anon, a jolly demon made his appearance attired in the reverend guise of a monk: this was brother Ruus. His homage done, he proceeds to relate the incidents of his monastic life: the crew of devils envy him his occupation, and Satan himself applauds the villain's cozenage. With the report of Ruus, the council terminated; and the peasant, overwhelmed with dismay, retraced his steps through the hollow oak. Next day, he hastened to the abbey, and described the dreadful scene he had witnessed. The abbot's eyes are opened, and he becomes sensible of his guiltiness: he assembles the penitent brotherhood: and, altogether, they fall on their knees, devoutly imploring the forgiveness of Heaven. Ruus is driven with disgrace from their society; and the purified austerity of their monastic functions is resumed.

This grotesque fiction represents the prominent features of imaginative literature in Denmark, during the middle age. It appears

among the ethological compositions of that period as Gothic arches are seen through clusters of nosegays or the branches of trees. It is an epigram in the middle of a prayer; it is a profession of infidelity interrupting a protestation of faith. This tale obtained an extensive circulation in France and England:* when it was transplanted to Denmark, the time is unknown.

The romance of "Flores and Blantzeflor"† was printed at Copenhagen in MDIX. This clever sketch in chivalry was read, from the north of Europe to the south, in every castle and baronial abode: the Danish version of it is a mere translation, and this is very duli.

Such, then, were the conditions of Literature and Education in Denmark, previously to the sixteenth century. Concomitant with this miserable *written* poetry, however, there existed a *traditional* poësy; and this was a noble, sweet, luxuriant poësy, which grew up in the middle of the Danish Middle-Age, like a forest of oaks in the centre of a sterile plain. This is the Poetry of the Kœmpeviser.‡ It was long misunderstood by the Wits: the Philosophers despised it: but, no sooner did an intelligent Spirit rescue from oblivion this sonorous harp, this "voice of ancient days," than the multitude listened with delight, the poets poured forth applauses, the learned felt amazement. From that time, Denmark no longer had reason to regard with envy the heroic rhymes of Spain or the border-ballads of Scotland. The Land of Lodbroc now possesses her own *Cancionero*; she now has her own *Minstrelsy*.

* With reference to the original popularity of this fantastic piece of "romanticity," a leonine sentiment occurs in Seidelin's *Paræmiæ Ethicæ*, printed at Frankfort in MDLXXXIX: *Quis*, the rhymer inquires, *non legit quæ frater Rauschius agit?*

† The original idea of this Romance has been ascribed to Boccacio, but without any reason. It was first introduced into the north by Euphemia countess of Brandenburgh, queen of Norway. Now, Euphemia died in the year MCCCXII, and Boccacio was born in A.D. MCCCXIII.

‡ An Essay on the "Kœmpeviser" will appear in a subsequent number of this journal.—ED.

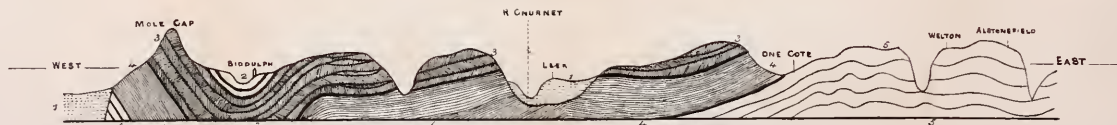


STAFFORDSHIRE.

SECTION N° 1



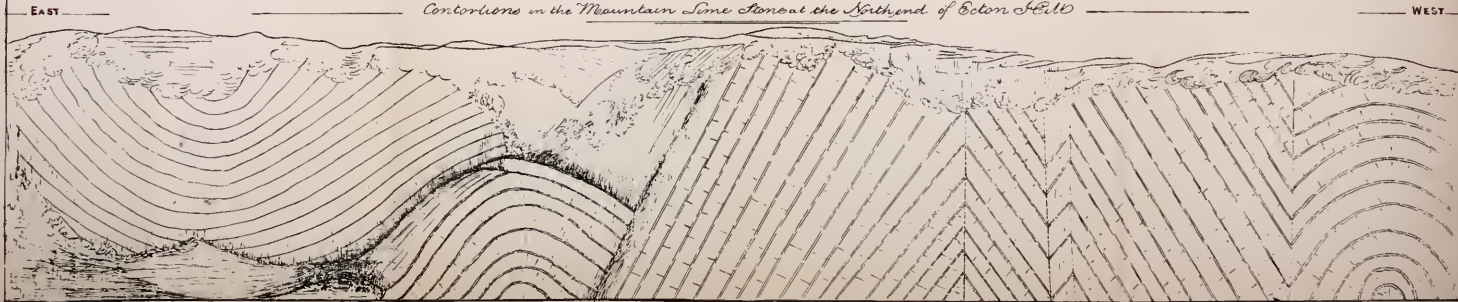
SECTION N° 2



1. New red sandstone — 2. Coal measures — 3. Mill Stone Grit — 4. Lime Stone shale — 5. Mountain Lime Stone

DIAGRAM N° 1

Contours in the Mountain Lime Stone at the Southend of Ecton Hill



Horizontal Scale one eighth of an Inch to a Pace

Completed 6/18

ON THE GEOLOGY OF THE NORTHERN PART OF THE COUNTY OF STAFFORD.

BY J. B. JUKES, B.A. F.G.S.

THE geological structure of the northern part of the county of Stafford is so intimately connected with that of Derbyshire that, although my materials are very scanty, it appears better to throw them together in the form of a supplement to my last paper, than to break the connection between the two. The rocks which enter into the composition of N. Staffordshire are precisely the same with those of Derbyshire, with the exception that no toadstone, or other igneous rock, is any where visible. The diluvium also differs somewhat, since there is in Staffordshire a greater abundance of far-travelled boulders than in Derbyshire;* large blocks of porphyry, granite, and other rocks, washed from the mountains of Cumberland, may be seen scattered over the Pottery coal-field and the country to the south, forming part of the great northern drift which has swept a mass of ruins over all the country intermediate between Cumberland and Worcestershire, and some of which have even been carried as far as the Bristol Channel.

In passing from Derbyshire into Staffordshire, little or no change takes place in the character of the scenery. The same high brown or purple moors of gritstone, the same green hills of limestone, and the same richly-wooded tracts of new red sandstone, may be seen in one as in the other county. There is, however, by no means that regularity of structure in N. Staffordshire, considered as a whole, which was observable in Derbyshire. The mountain limestone is confined to a patch on the eastern side of the district,† while the distribution of the shale and gritstone, the coal measures and new red sandstone, over the remainder is, at first sight, very irregular. This distribution will be best understood by marking on a map first, the outline of the mountain limestone, and next, of those parts occupied by coal measures, the intermediate portions being understood to

* Since writing the first part of the Geology of Derbyshire, I have been informed by Mr. Barker, of Bakewell, of the occurrence of granite boulders in Haddon field, and by Prof. Sedgwick of his having observed them on the summits of the hills bordering Derbyshire and Cheshire.

† Of course, its appearance on the surface is here meant, as it is believed to underlie all the rest of the district.

be composed of gritstone or shale, except when any of these rocks may be concealed by the overlying beds of the new red sandstone.

Beginning, then, at Berrisford Hall, near Hartington, the boundary of the mountain limestone runs by Narrowdale to Gateham, whence it sweeps round to the north, along the flank of Ecton hill, up to Warslow. From Warslow it runs with an undulating line to the west, to a point about one mile beyond Upper Elkstone, whence it deflects to the S. running nearly in a straight line S.E. as far as Waterfall and Waterhouses. From this point it sweeps round the bold hill of Caldron Low and along the S.W. flank of the Weaver Hills to Ramsor, whence it turns to the N.W. and enters Derbyshire again near Thorpe, at the extremity of Dove Dale.

The principal coal-measure district is that called the Pottery coal-field. This has a triangular form, the apex of which is at Bidulph, the eastern side running thence in a nearly straight line to the eastern corner of the town of Lane End; while the western, after sweeping round the southern extremity of Mole Cop, and enclosing Talk-o'-the-Hill, passes through Audley to the neighbourhood of Madeley manor house. The base runs from Madeley manor house, S. of Newcastle, to the S.E. corner of Lane End aforesaid. A much smaller district, which may be called the Kingsley or Cheadle coal-field, has a somewhat similar shape, the apex of which is at Ipstones, the eastern side passing by Froghall to near Oakamoor, the western running to the west of Dilhorne, and the base being an irregular line passing from the neighbourhood of Dilhorne, by Delph Houses, to the S. of Cheadle, and thence by Hales Hall to the Churnet, just N. of Oakamoor. In the northern corner of the county are several small tracts, where coal is worked, either on the back of the gritstone hills, or in the hollows made by the depression of their beds. Of the latter a remarkable instance occurs about half way between Leek and Buxton, about Goldsitch, where is a small patch of coal measures about $1\frac{1}{2}$ m. long by $\frac{1}{2}$ m. broad.

It remains now to notice the distribution of the new red sandstone. Beginning at Ashbourne, this rock will be found running up the valley of the Dove in a narrow tongue, forming the middle of the valley and also the sides, up to a certain height, as far to the N. as within a mile of Thorpe. Having crossed the valley of the Dove, the boundary of the new red sandstone is found to run towards the S. at the back of Church Mayfield, but shortly to turn N. again, and run in the same manner up the little valley that comes down by Stanton, that it does up the valley of the Dove. From the bottom of this valley the boundary is more regular, running N.

of Ellastone and Wootton Hall, by Farley, to Oakamoor. From Oakamoor the line mentioned before as running S. of Cheadle to a point about one mile west of Dilhorne, is the common boundary of the new red sandstone and the coal-field. From this point the new red sandstone runs up to Cellar Head, and thence by Holme down to Park Hall, near Lane End. The boundary of the Pottery coal-field then becomes that of the new red sandstone along the line by Madeley, Audley, and north of Talk-o'-the-Hill, to the S.W. end of Mole Cop, when the two formations separate again, and the new red sandstone runs into Cheshire, lying at the foot of the range formed by Mole Cop, Congleton Edge, and Cloud Hill. All the northern division of the county S. of the line now traced as running from Ashbourne, by Cheadle and Newcastle, to Madeley, is formed of the new red sandstone, without the appearance (so far as I am aware) of any other rock. To the north of this line all the country not previously included within the boundaries of the mountain limestone and the coal districts, is formed of gritstone and shale. A belt of shale, as usual, surrounds the mountain limestone, and a ridge of gritstone forms the boundary of the coal districts; but the two formations pass too insensibly one into the other to admit of drawing lines of demarcation, except on a map of very large scale, and after much greater time and labour than I have bestowed on them. Within the district thus occupied, however, there is yet to be noticed a very remarkable outlier of new red sandstone. From a hamlet called Fould, about two miles N. of Leek, down to the borders of the Cheadle coal-field about Consal, the valley of the Churnet is composed of this rock, which, as in the valley of the Dove above Ashbourne, forms the bed of the brook, and rests against the neighbouring hills up to a certain height, occasionally perhaps two hundred feet above the level of the river.* The same thing takes place, too, in a lateral valley that comes in from the W. below Cheddleton; new red sandstone is found up it as far at least as the village of Endon, which stands on an eminence composed of that rock. Another outlier of new red sandstone, but smaller and nearer the main mass of the formation, is that covering part of the Cheadle coal-field, and on which the town of Cheadle itself stands.

The structure of the districts thus mapped out, and the position of the beds of which they are composed, is well worthy of a more accurate examination and description than they have yet received. All I can do, however, is, to give a few hints respecting them.

* The town of Leek itself stands upon new red sandstone.

The mountain limestone is, no doubt, much broken by faults, some of which are very conspicuous and apparently of great magnitude; but, nevertheless, one of two things must be the case, either there exists no toadstone whatever, and the Staffordshire limestone is one undivided mass, or else there are no faults of sufficient magnitude to bring it up to the surface. It is, perhaps, more likely that the former should be the case than the latter. Another circumstance strikes us very forcibly in Staffordshire, and that is, the greater abundance of extraordinary contortions in the beds of limestone than is generally visible in Derbyshire. Whether this circumstance be an evidence of greater disturbing force, however, or of a modified exhibition of it, I am not prepared to say. Along the whole of that most lovely valley of the Manifold, from Warslow to its junction with the Dove below Islam Hall, these contortions are continually exhibited, but most especially where the river cuts through the north end of Ecton hill, a continued succession of saddles and curves being there shewn, which make it appear that the whole district is puckered, as it were, into small ridges and furrows running generally north and south, but having others crossing them at various angles.—(See diagram). It is probably to this continually arched position of the beds that the singular phenomenon is due of the sudden engulfing of a brook and its re-appearance after a few miles, which takes place in two or three instances in this district. The great richness in mineral products, too, of Ecton hill, and some other spots, may possibly be partly dependent on the fractured state of the rocks. It is remarkable, however, that copper, which is almost unknown in Derbyshire, should be the most abundant metal in many of the mines of N. Staffordshire.

The quarries at Waterhouses, half way between Leek and Ashbourne, is another place where the broken and disjointed and variously-arched position of the limestone beds may be well seen; and indeed hardly any considerable quarry or face of rock can be visited without seeing some curve or contortion exposed. Throughout all this disturbance, however, the action of some general law regulating the direction of the forces, can be traced in the fact that an inclination of the beds towards the N. or S. is very rare, almost every dip being E. or W. or within at most 45° of those points.

The large tract composed of the shale and gritstone has been affected in the same way as the limestone district, many changes of dip, and frequent steep inclinations of the beds, being constantly met with, and many great faults, no doubt, existing, whose situation is not so obvious. The direction of these inclinations corresponds

with those before mentioned, and a careful examination would no doubt detect numerous anticlinal and synclinal lines running across the country, with an approximately N. and S. direction. An anticlinal line, running N. and S. by Wetley Rocks and Cellar Head, certainly separates the Cheadle coal-field from that of the Potteries for some distance, as by Cellar Head shale may be seen, containing a bastard limestone, at the top of the hill, the gritstone dipping rapidly from it on either hand. How far, however, this line may run to the S. is unknown, on account of the overlying beds of the new red sandstone concealing the carboniferous rocks from our inspection. On the other hand, the position of synclinal lines in this direction, or lines towards which the rocks *bend downwards*, is marked by the position of the coal-fields themselves, which of course lie in troughs formed by the bending downwards of the gritstone rocks on which they rest. The small patch of coal measures mentioned before as occurring at Goldsitch, lies in a deep hollow of the gritstone rocks, which rise rapidly from under it on every side into lofty hills, more especially to the W. and S. on which sides the summits of the hills exhibit great beds and ledges of rock, whose rapid dip towards the valley may be seen a mile or two off. The coal measures themselves, of course, follow the position of the rocks on which they rest, and, being horizontal in the centre of the basin, crop out on every side at an angle of 30° , except towards the N. where they are cut off by a fault. One bed of coal is here worked, which for a short distance is five or six feet thick: there are two others, neither of which exceed two feet. The northern part of the Cheadle coal-field, about Kingsley, contains three beds of coal, the thickest of which is three feet; the beds are very nearly horizontal, what slight inclination there is being towards the N.W. S. of Cheadle, however, and about Delph Houses, five beds of coal are worked, the uppermost of which is six feet thick, the whole section having a thickness of one hundred and six yards, and over this part the inclination is S.W. the beds dipping at the rate of one in nine. At Dilhorne, I believe, similar beds are worked, but they here crop both to the N. and W. shewing that the anticlinal line mentioned before as passing by Cellar Head, throws out the beds on this side, and thus far, at least, produces a real separation between the Cheadle and Pottery coal-fields.

Concerning that far more extensive district, the Pottery coal-field, I regret that all the information I was able to procure is exceedingly scanty, owing partly to my own want of time, and partly to an absurd jealousy which still lurks in that district, with respect

to affording the inquirer any information on the subject. From what I could collect, the beds of coal are very numerous, and several of them upwards of six feet in thickness; but, if the different accounts were correct, great changes must take place, both in the thickness of the different beds, and the distances between them in different parts of the field. Mr. Heath, of Kidcrew, was kind enough to give me a section of the Hurecastle tunnel, in which a total thickness of upwards of three thousand feet of coal measures was cut through, containing twenty-eight beds of coal, whose thickness was altogether between sixty and seventy feet, and in which section neither the highest nor the lowest known beds are included. As, however, no mention is made of the occurrence of faults, I think there must probably be some mistake, and that some faults must have been unobserved by which a repetition of some of the beds was occasioned, producing this apparently enormous thickness of measures. The position of the beds in this coal-field is highly remarkable. Along the whole of the eastern portion, from Biddulph, through Burslem and Hanley, to Lane End, the beds dip west at an angle of 33° , on the average; but on proceeding two or three miles in that direction the beds are found to rise again, and in the country between Newcastle and Kidcrew they dip to the east at a similar angle. On the extreme western boundary of the district, however, they again recover their westerly dip, and plunge under the new red sandstone plain of Cheshire. About Kidcrew and Talk-o'-the-Hill the beds are greatly broken and shattered, one portion lying horizontal, perhaps, whilst its immediate neighbours dip E. or W. at the rate sometimes of eleven inches in twelve, or nearly 45° .* The direction of the chief line of fracture coincides with that of the ridge of hills called Mole Cop, Congleton Edge, and Cloud; and on examining these we find still stronger evidence of the action of the disturbing power. Along the W. side of Mole Cop, the upper beds of the mountain limestone begin to shew themselves near the base of the hill, and are worked at one or two points, having the shale above them, which is capped by the millstone grit. These two latter rocks compose the remainder of the ridge, their beds dipping to the E. and forming a clear escarpment to the W. Along this part of its course, then, the elevating force has not merely tilted the beds into a highly inclined position, and left them leaning against each other, as it were, for support, but has broken them clean through

* The workmen call the E. and W. inclinations "the Staffordshire dip" and "the Cheshire dip" respectively.

and lifted those on the E. side up into the air, while those on the W. remain buried at an unknown depth below the plain of Cheshire. If we compare the position of the rocks (such as it appears from even these brief notices) on the western side of the Penine chain,* with that of the same beds on the eastern, we shall be struck with the remarkable preponderance in the magnitude of the faults and dislocations of the former over those of the latter. This violently fractured state of the rocks on the western side of the district, and their comparatively undisturbed condition over the eastern portion, is true for the whole of this great range, and the ridge of Mole Cop is but a minor representation of Cross Fell.

In deducing from the examination of its structure a geological history of the district, the same remarks will apply to N. Staffordshire as to Derbyshire. We have, however, in Staffordshire, more striking evidence of the period intervening between the formation of the carboniferous system and the upper part of that of the new red sandstone, and of the great forces, both of dislocation and degradation, which were at work in the interval, than can be seen in Derbyshire. The fact of the new red sandstone running up the valley of the Dove and lying for several miles along that of the Churnet, following their windings, and resting with its horizontal beds against their broken and eroded banks, shews in the most striking manner that the carboniferous rocks had been elevated and disturbed, and these very valleys had been scooped out in them, before the deposition of the new red sandstone. The valleys seem, indeed, as if they had been arms of the sea running, like some of the Scotch lochs, into the dry land,† during the new red sandstone period, before which they must have been deeper than they are at present. During this period they were filled with new red sandstone up to a certain height, which at some subsequent period has itself suffered from an eroding cause, and the beds of the present rivers have been thus formed. These facts are important, as teaching us to look to a very ancient period for the beginning, at least, of those deep dales and ravines which cut through the mountain limestone and other hard rocks, and whose erosion seems impossible by any forces with

* The Penine chain is a term given by Phillips and Conybeare to the great central ridge of hilly country that runs from Derbyshire and Staffordshire to the borders of Scotland.

† It is by no means meant positively to assert that the hills of Staffordshire and Derbyshire were dry land during this period, though several arguments might be brought forward to render such an idea probable.

which we are acquainted, unless acting through very long periods of time.

Concerning the very important practical question of the extension of the coal-measures beneath the new red sandstone districts, I am not at present prepared to offer any thing farther than was stated in the last number, except that some facts I met with tended to confirm me in the opinion of the present boundaries of the coal-fields, when ending abruptly against the new red sandstone, having been formed by denuding and eroding forces acting before the deposition of that rock, rather than by direct fractures and dislocations having marked them out, either before or since. If this opinion should be correct, the existence of coal measures beneath any part of the new red sandstone can only be determined by direct experiment, since we have no means of inferring to what depth eroding forces may have acted. It is, at all events, a circumstance well worthy of cautious examination before entering into an expensive undertaking in search of coal beyond the present fields.

OBSERVATIONS ON THE NATURE OF HEAT.

THE word heat, as used in common language, expresses a cause and its effect; it expresses the sensation of heat and the cause of that sensation: hence philosophers, to avoid looseness of speech, have determined to strip the word of its two-fold meaning, and to confine it to the sensation, while, for the cause, they have framed a new word, viz. caloric. This distinction, I conceive, will appear sufficiently important to adopt it in the following remarks.

When the attention is first drawn to this subject, it may possibly be thought an easy matter to determine the nature of a principle so universal as caloric; but that men of the greatest fame in science differ in opinion upon its nature, will be ample refutation of the simplicity of the question. At present there prevail two opinions: the one is, that caloric is a subtle fluid, capable of entering into bodies and of being emitted from them; the other, that it is merely caused by the motion excited among the particles of matter; or, in other words, the one holds that caloric is material, while the other, that it is merely a property of matter. In entering upon this inquiry, it

will be necessary to consider how far caloric corresponds with our ideas of matter; then, which of the hypotheses gives the most plausible explanation of the phenomena dependent upon caloric.

If we adopt the opinion, as many do, that whatever is capable of acting upon our senses is material, the question is at once settled; but, to give greater scope to the argument, it will be better to fix upon some characteristics common to all matter, and then to find if there is any thing in caloric resembling or approaching to these. Extent and impenetrability are chosen as the indisputable characteristics of all material objects. The first implies, that every atom of matter must occupy space; the second, that no two atoms can occupy the same space in the same precise instant of time. "Were this latter proposition otherwise," says Sir John Leslie, "each body or atom might be successively absorbed into the substance of another till the whole frame of the universe, collapsing into a point, were lost in the vortex of annihilation."

Does this general and common characteristic of matter, extent, apply to caloric, or does caloric occupy space? It decidedly occupies space: for most bodies, by an increase of density, give out caloric; or it is a general law, with a very few exceptions, that bodies passing from a larger to a smaller bulk evolve caloric; or the reverse, bodies passing from a smaller to a larger bulk necessarily absorb, or take in, caloric. Thus, according to the experiments of Mr. Watt, water, by conversion into steam, is enlarged about 1800 times. It may be urged that this is all very plain when caloric is viewed in connection with matter; but does it occupy space unconnected with matter, as we can conceive an atom or a number of atoms of any elementary substance to do? This question certainly cannot be answered with the same clearness as that respecting caloric in connection with material objects. That it can, however, be answered in the affirmative, will be abundantly evident to any unbiassed mind who considers the following fact: the transmission of caloric *in vacuo*, as shewn by Pictet, by placing a thermometer in the exhausted receiver of an air-pump; and by Count Rumford, by placing the same in a Torricellian vacuum, the most perfect that can be found. Now, whatever passes through a complete void naturally occupies a portion of that, unless it be analogous to mental phenomena, which few would be willing to admit of caloric. Therefore, with the idea that caloric is material there is nothing preposterous in saying that extent is one of its essential properties.

The other essential property of matter is impenetrability, or that

no two bodies can occupy the same space in the same moment of time. For example, if a piece of wood or metal be plunged into a vessel filled to the brim with water, a portion of the water will overflow, exactly equal to the bulk of wood or metal immersed. To apply the same experiments to caloric, with our present knowledge of its nature, would be impossible; but there is evidently something very analogous, as is shewn in the following experiment by the distinguished chemist Berthollet:—"He took pieces of gold, silver, copper, and iron, equal in size, and submitted them to the stroke of a coining press when he ascertained the heat produced by each stroke, by throwing the pieces into water, the relation between the degree of heat given to the water, and the heat previously in the metal having been found by experiment." So he was able to ascertain how much the temperature of each piece had been raised; and the conclusions are these: each piece gave the greatest quantity of caloric out at the first stroke, less at the second, and still less at the third; besides, there was a close connection between the caloric produced by each blow and the reduction in size of the metal. Now, from these facts, I think, we may fairly infer the point at issue. Each piece of metal underwent the greatest diminution, and gave off the greatest quantity of caloric at the first stroke; there was less diminution and less caloric, at the second stroke; and still less of these at the third stroke. The particles or atoms of the metal would, on the first stroke, approach nearer to each other, whereby something, if any thing existed between the particles, must be thrown out, and that something may be caloric, which the increase of temperature seems to support. After the first stroke, the distance between the particles would be less, consequently there must be less of any thing between them; hence less contraction and less of anything to thrust out on the second stroke; and so with the third stroke. This argument may be met by saying, that there is no caloric in cold metal, at least not so much as to explain the quantity that can be produced in percussive. Our senses, or the most delicate thermometer, indeed, cannot inform us of the actual quantity of caloric in any body. The information these give us is only relative, and our knowledge of the subject has been compared to a person knowing a few links in the middle of a chain, while the extremities are removed from his view. So in the metal there may be much caloric, not to be detected by our senses or our instruments, capable of being evolved on compression, as the latent heat of steam is evolved on the condensation of the same. I am aware that, in hazarding this remark,

I am treading upon novel and very uncertain ground ; but it is not more against reason, unaided by experiment, to suppose that any body will give off caloric, whether latent or in any other form, on the application of a suitable cause, than to suppose steam, which conveys to our senses or the thermometer a temperature no higher than boiling water, should, on its condensation, give off nearly 1000 degrees more than is contained in boiling water. I say, the one supposition is not more plausible than the other by reasoning simply. Though the one is known from its effects, the other may possibly be explained when our knowledge of the subject becomes more accurate and our instruments more delicate.

On the whole, the increase of temperature on the metal being condensed, and the temperature always being in proportion to the condensation, seem to resemble much the overflowing of a vessel filled to the brim with water, on plunging any body into it ; and if the latter fact be a proof of the impenetrability of water, the experiments of Berthollet, if they do not *prove* the same with regard to caloric, afford, at least, presumptive evidence in its favour.

I come now to consider which of the hypotheses gives the most satisfactory explanation of the phenomena dependent upon caloric. It is a law nearly universal for all matter to expand by the addition of caloric : solids and fluids both observe this law. On this expansion something must enter between the particles, else there must be a *vacuum* ; and on the supposition that there is a *vacuum*, how does it happen that the atmosphere does not follow its usual law, and rush towards the unoccupied space ? If it did enter between the particles of the expanded body, it is natural to suppose that the weight of that body would be increased ; but the following experiment of Dr. Fordyce shews that increase of weight does not necessarily follow an increase of temperature. He put 1700 grains of water into a glass globe three inches in diameter, and sealed it hermetically, and then ascertained the weight of the whole. He next plunged the globe into a freezing mixture, where he kept it till part of the water was frozen, which he again weighed ; and on comparing the weight of each trial, he found that the frozen water had gained about 1-60th part of a grain. These trials were repeated several times, more of the water being frozen each time, when a corresponding increase of weight was obtained. This would seem to prove that the weight of a body became less on the addition of caloric ; and were ponderosity reckoned one of the properties of matter, it would militate against the materiality of caloric ; but as this property is merely relative and

susceptible of change, it cannot upset the idea that caloric is material.

The radiation of caloric is a sufficient proof, were there no other, that it is material. It passes through space in straight lines; it can be reflected at will, and collected into a point, so as to resemble the condensation of bodies confessedly material. It is scarcely possible to conceive that this would arise merely from the commotion of the particles of a body, for the hypothesis implies the greater the commotion the greater is the quantity of caloric; and there is no evidence that the commotion of the particles upon which it is concentrated is greater than those from which it is reflected, unless the increase of temperature be taken as such; besides, the point from which the caloric emanates, and the point upon which it is concentrated, may be under nearly similar circumstances with regard to this agent, yet they must be governed by very different laws: the former being increased in temperature from the commotion of its particles; while, in the latter, the increase of temperature causes the commotion among the particles, or, in other words, what is the cause in one point is the effect in the other.

How ill adapted, then, must the hypothesis be that requires the aid of opposite laws to explain the same phenomena in the same matter! The like reasoning is applicable to the conduction or the communication of caloric from one body to another; but with the idea that caloric is material, the phenomena of radiation and conduction admit of easy explanation.

The hypothesis, also, of its material nature, gives a satisfactory explanation of the phenomena attendant on the conversion of solid substances into fluids or gases, or the reverse: in the former, caloric is absorbed; in the latter, it is given off. How great is the resemblance between this and the absorption of a fluid by a sponge or any porous body, and the escape of that fluid on pressure.

There are, however, some instances in nature, contrary to the general rule, where caloric is produced on the conversion of a body from a smaller to a larger bulk. Of this, the explosion of gunpowder is an example, and which is brought forward against the idea of the material nature of caloric. But the fact proves nothing, save by analogy; and if analogy have any weight, there is as much reason to suspect that caloric, as matter, is lodged among the particles of this astonishing product, ready to burst forth on the application of a suitable cause.

A similar objection may be raised from the fact that water, on

cooling from 40° to 32° , Fah., expands: but this is accounted for on a different principle. It is generally supposed that the crystals which are formed on the water becoming ice, observe a particular arrangement, or that the coaptation among them is not such as to occupy the least possible space. Were this law otherwise, the lakes and streams, in severe winters, particularly in northern regions, would be rendered one complete mass of ice; in short, the fountains of the deep would be dried up, and man would have only a precarious supply of this indispensable requisite. But as it is, water, on cooling from 40° to 32° , expands; it therefore becomes lighter, and swims above the heavier. The particular arrangement of the crystals, as already mentioned, will explain the enlargement without the seeming paradox of matter becoming larger, or matter being extracted.

The only other comparison which I shall draw between the two hypotheses is derived from the production of caloric by percussion or friction; and this, I may add, is reckoned by some as one of the greatest stumblingblocks to the idea that caloric is material.

They argue that whatever can be generated out of nothing cannot be material. Thus, Dr. Young, in his *Lectures on Natural Philosophy*, says, "If the heat is neither received from the surrounding bodies (which it cannot be without a depression of their temperature), nor derived from the quantity already accumulated in the bodies themselves (which it could not be, even if their capacities were diminished in any imaginable degree), there is no alternative but to allow that heat must be actually generated by friction; and if it is generated out of nothing it cannot be matter, nor even an immaterial or semi material substance." The first of these propositions is admitted, as it can bear the test of experiment; but the second is a mere assumption, viz., "that the caloric cannot be derived from the quantity already accumulated in the bodies themselves, even if their capacities were diminished." Were we able to measure the quantity of caloric in any body, this supposition might be entertained in preference to one more in accordance with the laws of matter. This, however, we cannot do, with our present information; for any body may contain one degree of caloric, or ten thousand, as our knowledge is only relative. Further, the reverse of this assumption will explain all the phenomena attendant on percussion or friction, without the violation of a single law of physics. Whereas the idea that caloric is merely the consequence of motion, for the support of which the assumption is raised, can only be defended by setting aside an important fact in

the laws of motion. For instance, whenever a *moving force* is applied to any body at rest, part of that force is expended in overcoming the *inertia* of matter; consequently, the power is less efficient than when the *inertia* has been overcome. These facts, however, by no means coincide with Berthollet's experiments with the metals, as specified. The first blow, having to overcome the actual or comparative *inertia* of matter, would naturally, on this view, afford least caloric, as the motion among the particles would be less than on the succeeding blows; but the reverse was the fact, as the first blow afforded the greatest quantity of caloric. That caloric already existing in bodies is merely evolved on percussion or friction, is an assumption as destitute of proof as that which Dr. Young has assumed; but it does not violate any of the known laws of matter, or rather it coincides with some of those laws which the opposite idea directly sets at naught. Therefore, it is certainly more logical to adopt that opinion which is supported by reasons, though not stronger than analogy, in preference to another not only destitute of analogical reasoning, but running directly counter to what analogy might lead us to expect.

The same author remarks that "those who look up with unqualified reverence to the dogmas of the modern schools of chemistry, will probably long retain a partiality for the convenient, but superficial and inaccurate, modes of reasoning which have been founded on the favourite hypothesis of the existence of caloric as a separate substance; but it may be presumed that, in the end, a careful examination of the facts which have been adduced in confutation of that system will make a sufficient impression on the minds of the cultivators of chemistry to induce them to listen to a less objectionable theory." Notwithstanding the denunciation of being a superficial and inaccurate reasoner, I am induced, after taking a retrospect of all the facts connected with caloric, to consider it material. This view gives the most satisfactory explanation of the greater part of the phenomena dependent upon caloric, though a few of them, as instanced in the case of bodies becoming larger and at the same time emitting caloric, may at first stagger us in this belief, yet if we deal with the subject as is done with the other objects of nature, there can be no hesitation about the conclusion I have drawn: I allude to the formation of a law from the general effect of any body, rather than from the exceptions to it.

The invention of the hypothesis that caloric depends on motion, is ascribed to Lord Bacon; and it is supported by the opinions both of Boyle and Newton. The opinion of such men ought certainly to

make any one pause before he differed from it ; but were mere names to be taken as evidence in scientific inquiries, all improvements would fast be at an end. The only legitimate way of interrogating nature is by observation and experiment, and facts fairly deduced from these are of more value than theories the most beautiful, no matter by whose name they are supported.

BLANCHE DE BEAULIEU ;

A TALE OF THE REVOLUTION.

TAKEN FROM THE FRENCH OF ALEXANDRE DUMAS.

ON the evening of the 15th of December, 1793, a strange and fearful spectacle presented itself from the hill which, on the road from Clisson,* overlooks the valley where the village of St. Crepin lies almost hidden among the trees. At first the eye could discover only, in the dim twilight, three or four columns of thick smoke, which, separated at their base, united into one dense mass as they rose, lazily waving in the heavy atmosphere ; then rolling away, mixed with the low and foggy clouds. Gradually the dark vapour became more lurid ; and at length, bursting from the roofs of the houses, the long forked flames usurped its place with a crackling sound ; now, creeping stealthily along ; then, darting spirally upwards, piercing the thick mist which hung over them like a mantle. From time to time, as a roof fell in, a more vivid blaze arose, which, mingled with a thousand sparks, disclosed to view a company of soldiers, whose occasional shouts and bursts of merriment contrasted strangely with the awful scene before them. It was a republican brigade of fourteen or fifteen hundred men ; who, having found the village deserted, had wantonly set it on fire.

One detached cottage, however, was not yet burning. Every precaution seemed to have been taken to prevent the flames from reaching it. Two sentinels stood at the door, and occasionally an officer or aide-de-camp passed in, and returned to transmit orders to

* Clisson, a small town in Bretagne, near Nantes.

the army without. He who issued these commands was a young man, who did not appear to have numbered more than two and twenty years. His long brown hair parted on his forehead, fell in waving curls over his temples and cheeks, which were pale and thin ; and his whole countenance was stamped with that indescribable air of melancholy which, in the eye of superstition, is considered to mark those who are fated to die young. He was bending over a table, and beneath the large blue cloak which was wrapped loosely round him, might be discerned the marks of his rank—the insignia of a general. A geographical chart lay before him ; and by the light of a lamp, which seemed to grow pale in the more lurid blaze of the burning village, he was tracing with a pencil the route his men were to take. It was the young republican General Marceau.

At length the work of destruction was over. The village so lately smiling in its peaceful valley was reduced to a heap of ashes. The groups of men which surrounded it once more forming into column, prepared to traverse the dark and circuitous route which separates St. Crepin from Montfaucon ; and when, some minutes after, the moon shone for an instant from behind the thick clouds, on their glittering bayonets, as they crept almost noiselessly along, they appeared, winding through the darkness like an immense serpent, covered with scales of burnished steel.

Marching to an attack by night is a melancholy thing to an army. War may be glorious to the enthusiast by day, when, amid the roar of the cannon and the clanging sound of conflicting weapons, the martial trumpet excites ardour in the soul, and friends and enemies are by to see how gloriously we fall. But in the deep silence of night, not to know how we are attacked, nor how to defend ourselves ; to fall without seeing who strikes us, nor whence the blow came ; to be trampled under foot in the darkness, surrounded by the dying and the dead, with no friendly eye to pity and no arm to succour us ; these, these are the horrors that often make the boldest heart quail, and the most daring arm tremble. Such thoughts passed rapidly through the minds of many in that army, as they pursued their route cautiously and in silence ; for they knew that a sharp conflict awaited them at the end of a toilsome and difficult march—a battle by night. Marceau himself was their guide ; he had so attentively studied all the localities that he believed himself able to conduct them in safety to the spot to which they were bound, and the event proved he was not mistaken. In little more than an hour they found themselves in the dark gloom of the forest, where, according to the intelligence he had received, Marceau

expected to surprise a number of the fugitive royalists, and some part of their forces, amounting to nearly eighteen hundred men, assembled to hear a mass.

The General now separated his little troop into several columns, with orders to traverse the forest in different directions, and surround the appointed spot on every side. Half an hour, he calculated, would suffice for each party to take up its respective position. One division remained to advance by the way which lay before him, the others separated on each side to pursue their respective routes; the heavy tramp of their steps gradually became fainter and fainter, and at length died away altogether.

The half hour passed quickly, and the word "Forward!" was at length given by Marceau. As they cautiously and gradually advanced, the cross-way which formed the centre of the forest appeared illuminated. On a nearer approach a number of glittering torches were perceived, and soon as every object became more distinct, an unusual sight burst upon their view. On an altar rudely erected by piling together a number of loose stones, the minister of Saint Marie de Rhé was performing a mass; a number of old men encircled the altar, bearing torches in their hands, and round about a crowd of women and children were on their knees, engaged in prayer. Between the republican army and this group, the men were stationed in a thick phalanx, evidently prepared for attack or defence. The royalists did not wait for the onset. They had sharpshooters in the wood, who had already commenced firing on the approaching soldiers, who advanced firmly step by step, without pulling a trigger, or answering in any way the reiterated fire of their enemies. The only words heard were, after each discharge, "Close up! close up!" All this time the priest continued to read the mass, his audience remaining on their knees, apparently unconcerned with what was passing around them. The republican army steadily advanced; when they were within thirty paces of their enemies, the firing commenced; the first rank dropping on one knee, three lines of guns were discharged, making terrible havoc among the royalists, and some balls, passing into the midst, fell at the foot of the altar, killing or wounding women and children in their course. All was instantly cries and tumult. The priest raised the host, and every head bent to the earth in reverential silence. The republicans fired their second discharge at ten paces; as calmly as though they were at a review, and with as much precision as before a target. Neither party had time to reload, but, rushing on, closed with their bayonets; and here the republicans, being regularly armed, had a

decided advantage. The royalists began to give way; rank after rank fell before their powerful enemies. The priest, perceiving this, gave a sign, and in an instant every torch was extinguished, and the warfare carried on in total darkness. In the midst of the scene of carnage and disorder which ensued, the words "Mercy! mercy!" were pronounced in a heart-rending voice at the feet of Marceau, who was in the act of striking the soldier now clinging to his knees. He paused. It was a young Vendéen, disarmed, who sought to escape from this terrible conflict. "Mercy!" he repeated, "for the love of heaven, save me!" The General drew him a few paces from the field of battle, to avoid the notice of his soldiers, but was soon forced to stop: the stranger had fainted. Marceau felt surprised at this excess of terror in a soldier, but he nevertheless hastened to assist him; and on unbuckling his helmet, to give him air, he discovered by the long flowing tresses which escaped that it was a woman he had saved! Not an instant was to be lost. The orders of the Convention were strict: "Every Vendéen found carrying arms, or joining an assemblage, be their age or sex what it would, was to perish on the scaffold." Placing her under a tree, Marceau hastened back to the field of battle. Among the dead he distinguished a young republican officer, whose height and size appeared to him to correspond with that of the unknown, and, hastily despoiling him of his uniform and helmet, he returned to his charge, whom the fresh air of the night had nearly restored to consciousness. "My father! my father!" were her first words, as, partly raising herself, she passed her hand rapidly across her brow, as if to collect her scattered senses, "I have abandoned him! he is killed!" "No, Mad. Blanche," said a voice from behind her, "the Marquis de Beaulieu lives; he is saved! *Vive le Roi!*" He who uttered these words disappeared like a shadow, but not before Blanche had recognized the faithful follower of her house. "Tinguy! Tinguy!" she exclaimed, stretching her arms whence the sound came. "Silence!" said Marceau, "one word will betray you, and then even I cannot save you, though I would wish to do so. Put on these clothes, and wait here." He again repaired to the scene of conflict. The royalists were entirely routed, and many of them taken prisoners. Giving his troops orders to retire towards Chollet, and leaving his colleague in command, he returned to Blanche, whom he found ready equipped to follow him. They directed their steps towards the high road which traverses the forest, where Marceau's servant awaited him with led horses. Here his embarrassment increased, for he feared his prisoner would not be able to manage her

steed so as to use all the expedition he knew was necessary ; but he was quickly re-assured by seeing her vault into the saddle with all the ease and grace of the most accomplished horseman. She smiled faintly on observing his surprise, and said " You would not be astonished, did you know all the circumstances which have made every manly exercise familiar to me." " At some future period I will hear them, said Marceau ; " our object must now be to gain Chollet as quickly as possible : so give your steed the rein, and follow me." He spurred his horse into a gallop, and in half an hour they entered the town. Proceeding to the Hotel de Sans-Culottes, he engaged two rooms, and, conducting his charge to one of them, recommended her to lie down in the clothes she then wore, and endeavour to gain a little of the repose she so much needed, after the horrors of the past night. Youth is a period in which misery appears so foreign to existence that it seems almost impossible to become familiarized with it. Thus, Blanche, notwithstanding the deserted state in which she found herself, could still look forward with hope to the future. The soft voice and elegant figure of the republican general had already made an impression on her young heart. The idea of death—of the scaffold—never once entered her mind, for Marceau had said " I will save you."

The General quickly laid his plans: one only method of saving Blanche appeared practicable, which was to convey her himself to Nantes, where his family then lived. For three years he had not seen either his mother or sisters, and now, finding himself within a few miles of their residence, he determined to wait immediately on the general-in-chief, to acquaint him with the success of his late expedition, and at the same time solicit him for leave of absence. This he obtained without difficulty ; and in a few hours he and his young charge set out on their journey. No sooner did he find himself alone with Blanche, than he claimed her promise of detailing to him the events of her past life ; for he already felt a lively interest in the young stranger so unexpectedly thrown upon him for succour. With a touching simplicity she related the following circumstances. Having lost her mother when very young, she had become the sole companion of her father, the Marquis de Beaulieu ; and was accustomed, from her earliest years, to share with him the chase, and all the manly sports of the age. After the insurrection of La Vendée broke out, she was thus enabled to show her devotion to her fond parent, by following him in the disguise she wore when Marceau found her. Perceiving how deeply the young General was interested in the recital, she went on to relate all the fatigues

and terrors she had undergone from the taking of St. Florent till the night on which he had saved her life. The city of Nantes broke upon their sight as she finished her tale; and in a few minutes Marceau was in the arms of his family. His first welcome over, he presented to them his young fellow-traveller. A few words were sufficient to interest them in her behalf; his sisters vied with each other in showing her the most delicate attentions; and on her expressing a wish to exchange her present dress for one more becoming her sex, conducted her to their apartments, where they assisted her to array herself in a more suitable costume, selected from their own wardrobe.

Prepossessed as the young General was already in her favour by the sweet simplicity, mingled with the womanly dignity, she had displayed throughout their intercourse, he could not conceal his admiration when he beheld her striking beauty, as, on returning to the room, she smilingly extended her hand towards him. Blanche could not but perceive the impression she had made, and a sensation of delight arose in her mind as she did so. For the first time in her life she became conscious of the full value of personal charms; and she inwardly thanked heaven for having so plentifully bestowed them on her. All was joy and happiness under one roof in Nantes on that evening.

Days passed rapidly on. Every hour Marceau became more convinced of the danger of remaining in Blanche's society, yet found it impossible to tear himself away. It was vain to attempt to conceal his passion; it was visible in his every look and action. On one occasion he presented to her the most costly ornaments, but she could not be prevailed upon to accept any. "Do jewels become my situation?" she replied sadly, "while my father is probably begging his bread from cottage to cottage, a homeless outcast, with a price set on his head; myself a proscribed fugitive! No! my simplicity will hide me from observation, and remember, discovery would be ruin." Then, on seeing how much he was hurt by her refusal, she said more gaily, "Well, then, I will take *this*," selecting from the ornaments before her a small artificial red rose, "and wear it in memory of your kindness." A fortnight still remained before the expiration of his leave of absence, when Marceau suddenly received an order to return immediately to his regiment, and join the army in the west of France. He was astonished and dismayed beyond measure at this unexpected command. One thing was certain—it must be obeyed; to hesitate was to be lost.

Must he, then, leave her who had become dear to him as his own

soul? for whom he would have gladly sacrificed every thing but *honour*? Must he leave her, alone and unprotected, in a city through the streets of which daily flowed the blood of those unhappy victims who were, like her, obnoxious to the republican government? Blanche was present when the order was given to him, and perceiving his agitation, hastily enquired what had discomposed him. Without a word, he put into her hands the document he had just received. She saw in a moment the danger to which he would expose himself in neglecting to obey it, and, though her own heart beat violently as she spoke, she enforced upon him the necessity of his instant departure. Marceau gazed on her scornfully. "And can you, too, Blanche, command me to go?" he said: and then, starting up, paced the room with hasty strides, muttering to himself, "Fool! madman that I am, to have imagined she would regret my absence! How could I dream that she would regard me with any other feeling than indifference?" A stifled sob met his ear. Unable any longer to restrain her emotions, Blanche had burst into tears, and was now weeping violently. In an instant he was by her side.

"Pardon me, Blanche; pardon my impetuosity!" he wildly exclaimed, "for I am very, very wretched, and misery makes us reckless." Then, taking her trembling hand, he continued, in a calmer voice, "The war we are now waging, Blanche, is a cruel and deadly one: it is more than probable we shall never meet again. I have always had a presentiment that my life would be a short one. If I fall, promise me that I shall not be altogether forgotten by you—that a thought of me will sometimes recal to your memory the transient dream of happiness from which we have been so suddenly awakened. For myself, Blanche, I can only assure you that if, between life and death, there is time for these lips to breathe one word, it will be your name." Blanche could not speak, but Marceau read in her eyes a thousand more tender promises than that he had required of her.

The necessary orders for his departure were given, and in an hour afterwards he had quitted Nantes. His road lay in the same direction as that which he had so lately traversed with Blanche by his side, therefore every object he passed only served to recal her more vividly to his memory. Was it possible that one little month back he had never seen her? And now, a new existence seemed opened to him. He thought of the unprotected state in which he had left her, and a terrible misgiving came across his mind. He reined in his steed, and felt half inclined to return to Nantes, and

convey her to a place of greater security ; but he reflected that by so doing he should probably excite suspicion, and with a deep sigh he proceeded slowly on his way.

About three leagues from the city he stopped at a village to give his horse some refreshment, and as he was remounting he fancied he heard his own name called. Marceau paused. In a few moments he distinctly heard it repeated, and at the same instant a man vaulted over the hedge behind him, and, rushing forwards, fell at his feet, with only strength to murmur "Thou art betrayed—she is arrested!" It was the faithful Tinguy. "Arrested? Who? Blanche?" cried Marceau.

The man made a gesture in the affirmative: he could not speak. He had travelled three leagues on foot to overtake the young General, and when he reached him his strength was totally exhausted. Marceau seemed bewildered; he gazed wildly on the peasant, a convulsive shudder ran through his frame, and he repeated vaguely, "Blanche arrested? My Blanche arrested? I see through it all now," he at length murmured, in a hoarse whisper; "this, then, is the motive of my being sent away! I must return instantly to Nantes: I will save her, or perish in the attempt! Fool! idiot! dupe that I was, to leave her! Blanche arrested? Where, then, have they taken her?"

Tinguy, to whom this question was addressed, was still lying on the spot where he had at first fallen. Every vein in his body appeared swollen almost to bursting, his eyes seemed starting from their sockets; and on the question being repeated to him he had only power to whisper, "To the Prison de Bouffays."

No sooner were the words uttered than Marceau sprung on his horse, and was in a few moments lost to sight. In an inconceivably short time he re-entered Nantes, and repairing to the "Place de Cours," stopped at the door of the house in which the *famous* (or rather *infamous*) Carrier* resided. With the air of one who ex-

* Member of the "National Convention," and its representative in Nantes, whose indiscriminate slaughter and unrelenting barbarities have rendered his name atrociously celebrated. The Vendéens, the royalists, even those whose only crime was want of zeal in the republican cause, could not have a more implacable enemy than Carrier, who was to Robespierre what the hyena is to the tiger, and the jackal to the lion. This was the monster who, finding the guillotine too slow for his savage purposes, invented "*les Noyades*," a species of barges, with false bottoms, by means of which hundreds of his victims were drowned at a time. Carrier perished on the scaffold in the year 1794.—(From Turreau's *Histoire de la Guerre de la Vendée*.)

pects and has a right to be obeyed, he demanded an audience, but, to his dismay, was refused admittance ; and neither entreaties nor threats could procure him an interview. What was now to be done? There was not an instant to lose ; for in those times of horror it was no uncommon occurrence for the unhappy victim to be arrested, condemned, and executed, in the short space of twenty-four hours. Marceau reflected an instant, then, giving his horse in charge of a soldier who stood near, he bent his steps towards the prison where Blanche was confined. The name and rank of the young General were sufficient to obtain him an immediate entrance there, and he commanded the gaoler to conduct him instantly to her dungeon. The man hesitated ; but Marceau repeated his order in a more peremptory tone, and, no longer daring to refuse, he made him a sign to follow, and led the way.

“She is not alone,” said he, as he threw open the low arched door of the dark cell, “but she will soon be rid of her companion, for he is to be guillotined to-day.” Then enjoining him to shorten his interview as much as possible, he closed the door on Marceau, leaving him in nearly total darkness. Unable to distinguish any object, he groped along the wall, endeavouring to utter the name of Blanche, yet unable to articulate a word ; but she, more accustomed to the obscurity, recognized him immediately, and with a joyful cry sprang forward. In an instant she flew into his arms, forgetting in her terror every thing but the delight of seeing him again. She clung convulsively to him, murmuring, almost inarticulately, “You have not, then, abandoned me ! Among the crowd which followed me here, I perceived Tinguay, and cried out Marceau ! He disappeared. I had no hope that he would find you—that I should see you again : but you are here, you are here ! and you will not leave me in this frightful place. You will carry me hence, will you not ?” “I would do so this instant, even at the price of my own life ; but—” “Oh, Marceau ! look at these dripping walls, this noisome dungeon floor. You, who are a general, cannot you—?” “Listen to me, Blanche. This I could do : knock at the door of your cell—blow out the brains of the man who would open it—carry you into the court—restore you for a few minutes to the fresh air and the light of heaven—and then die in your defence. But were I dead they would drag you back to your cell ; and there exists not in the world another man who can save you.” “And can you, Marceau ?” “I will try, Blanche. But in your turn answer me a question ; one on which your life and my own depends. Answer me, then, as you would before your God—

Blanche, do you love me?" "Is this a time or place, Marceau, for you to ask or me to reply to such a question?" "Yes, Blanche; for we are between life and death, time and eternity. Answer me quickly, for now every moment becomes a day, every hour a year.—Blanche, dost thou love me?" "Oh yes, yes!" she exclaimed, and hid her blushing face in his bosom. "It is enough!" said Marceau. "this instant, then, you must accept me for your husband." She started. "In the name of heaven, what is your design?" "To snatch you from death; we will see if they will dare to carry to the scaffold the wife of a republican officer." Blanche now perceived the motive of his proposition; but she trembled at the idea of the danger to which he would expose himself in saving her by this means, and, recalling all her courage, she replied firmly, "Marceau, it is impossible." "Impossible?" he exclaimed, "impossible? and why? Is this a time, Blanche, for displaying any false feelings of delicacy, with the scaffold, the axe, the executioner, awaiting you?" "No, no!" cried the unhappy girl, "not so; it is for thee I tremble, Marceau. I do not dread death; for God knows that, with the exception of one bright and transient gleam, my short life has been full of misery and sorrow, and I am ready to drain my cup of bitterness even to the dregs, if it be *His* will: but I *cannot*—*will not*—bring disgrace on your name." "So this is your motive for rejecting the only hope you have left! Then listen to me, Blanche. You refuse to accept of safety at my hands; but you cannot drive me from you. Your fate shall be mine: no human power shall separate us. The words '*Vive le Roi*' will be sufficient to close upon me the doors of your dungeon—will sentence me to share with you the scaffold and the grave!" "Oh, cease! in pity cease! Go, Marceau; leave me to my fate!" "Go! you bid me leave you! Blanche, I swear by heaven that if I go hence without your giving me the right to defend you, I will seek out your father, your bereaved, your heart-broken father. I will say to him, "Thy daughter could have saved herself, and would not. She willed that your last days should be embittered. She has brought down your grey hairs with sorrow to the grave. Ay, weep! weep, old man! not for the loss of thy daughter, but that her love for thee was not strong enough to make her wish for life." Then, taking her hand, he exclaimed passionately, "Oh, for pity's sake! by all you hold most sacred in the world, Blanche, Blanche, consent to become my wife! There is no other hope for you—you *must* not, *ought* not to reject it!" "You *ought not!*" interrupted a strange voice from the further extremity of the dark cell; "for religion forbids us to sacrifice

our life when it is in our power to preserve it ; and I am ready this instant to join your hands."

Both started as though they had heard a voice from heaven ; and, turning round, Marceau recognized in the stranger, who had now advanced towards them, the venerable minister of Sainte de Rhé. "Blanche de Beaulieu," continued the priest, more solemnly, "in the name of thy father (whom my age, and the friendship which united us, give me the right to represent), by the love you bear him, I adjure you to yield ; were he himself here he would command it." Her bosom heaved with conflicting emotions ; she hesitated an instant, then, unable longer to resist their united appeals, threw herself into the arms of Marceau, exclaiming convulsively, "I am thine ! I am thine !" while he, clasping her to his breast, mingled his tears with hers. The voice of the priest recalled them. "We must lose no time, my children," said he, "for my moments are numbered, and delay may prove fatal." Taking Blanche by the hand, Marceau gently led her towards a spot where a few rays of light, struggling through a small loop-hole, rendered the darkness less obscure ; and there, falling on their knees, they awaited in silence the benediction of the priest. A feeling of superstitious awe involuntarily rose in their minds, as the walls echoed back the solemn words which were now, for the first time, uttered in that dreary cell, and the voices of both trembled as the holy vow passed their lips. Stretching his arms over their heads, the priest was proceeding to pronounce the final prayer and benediction, when a sound of arms and voices from the corridor startled them. The affrighted Blanche buried her face in her hands, exclaiming "Are they come already to fetch me ? Oh, my God ! how frightful does death appear at such a moment !" The General started up, and threw himself before the door, a pistol in each hand. The soldiers drew back. "Be not alarmed," said the priest, "It is me they seek. I am prepared for death. On your knees, my children," he continued, in a loud voice, "on your knees ; for with one foot in the tomb I will give you my blessing ; and the last blessing of a dying man is sacred." The astonished guards surrounded the group in silence, while, taking from his bosom a small crucifix which he had concealed there, he held it aloft, and slowly, impressively, uttered his parting benediction. Then, after a few minutes solemn silence, which none dared break, he turned to the soldiers, saying firmly—"Proceed ; I am ready." The thick door swung heavily back on its hinges, and in another instant the young General was left alone with Blanche.

Aware that every minute was precious, and that the least delay might frustrate the great object he had in view, Marceau prepared to leave the trembling girl who still clung to him for support, yet feared to tell her that he must go. She read his thoughts, and, throwing herself before him, clasped his knees convulsively, crying wildly, "Oh, Marceau! do not leave me! for God's sake, do not leave me in this terrible place! What will become of me if they come to drag me hence, when thou art not here to defend me? Imagine thy Blanche, thy *bride*, on the scaffold, and thou far away, unable to hear her calling on thy name for help, unable to raise an arm in her defence! Oh, my God! what will become of me?" "Blanche, I am certain of saving thee: I will answer for it with my life. Ere to-morrow evening I shall be here with thy pardon. They *will* not—*dare* not—condemn you before that time; and then we will think no more of dungeons and death, but of life and liberty, happiness and love."

The door opened, and the jailor entered to conduct Marceau from the prison. Gently disengaging himself from Blanche, who had thrown her arms round him, he imprinted one long kiss on her fair brow, and without trusting his voice to utter another word he tore himself away. In less than a quarter of an hour the General was on his road to Paris. His known wealth and high rank were sufficient to procure for him instant attention at every place on his route, and he easily obtained promises that horses should be ready for him the next day, in order that no obstacle might delay his return. At a very late hour his carriage entered the city, and proceeding up the "Rue St. Honoré," he stopped at the door of No. 366, and demanded to see the citizen Robespierre. "He is not yet returned from the '*Theatre de la Nation*,' was the reply of the attendant. "Well, then, I will seek him there; if I am unsuccessful, I will return and wait for him here." "And your name, Sir?" "The citizen General Marceau." Cursing in his heart the volatility of his nation, which even at such a time had not lost its relish for amusements, Marceau bent his steps towards the theatre, and was fortunate enough to meet with the object of his search immediately as he entered the corridor. On introducing himself by name, Robespierre extended his hand to the young General, and, with a smile, asked what he would demand of him. "An interview of a few minutes," said Marceau. "And when?" "This instant," was the reply. Wrapping his large mantle around him, Robespierre made him a sign to follow, and rapidly led the way towards his own residence,

himself calm and indifferent, his companion anxious, restless, and agitated.

"This, then, was the man who held in his hands the fate of Blanche; the man of whom he had heard so much, and whose popularity appeared a problem. He had employed none of the means made use of by his predecessors to raise himself to his present distinction; he had neither the captivating eloquence of Mirabeau, nor the plausible sophistry of Barrère, nor the wild impetuosity of Danton, nor the loose eloquence of Hébert. In the midst of the universal disregard of language and dress which prevailed, he had preserved his pointed and studied expressions and elegance of costume. In fact, while the others had laboured to embody themselves with the mob, his constant endeavour had been to make them feel his superiority; and one saw at a glance that this singular man must be the *idol* or *victim* of the multitude. He was *both*.

Arrived at their destination, Robespierre led the way up a narrow staircase to a small room on the third floor. A bust of Rousseau, a table covered with books and papers, a secretaire, and a few chairs, formed the whole furniture of the apartment. Robespierre saw the surprise of the young General as he threw open the door, and said with a smile, "Behold the palace of César! What have you to ask of the dictator?" "The pardon of my wife, condemned by Carrier," replied Marceau, gravely. "Thy *wife*? Condemned by Carrier? The *wife* of Marceau—of a republican officer—of my brave Spartan soldier—*condemned*? Impossible!" "It is nevertheless true;" and Marceau proceeded to explain the facts with which the reader has been already made acquainted. During the recital, Robespierre was evidently uneasy, but spoke not a word until Marceau had finished. Then, in a voice stifled with rage, he muttered, "This is how I am always misunderstood, in every place where my eye is not there to see, and my hand to stop, this useless carnage. Much blood must necessarily yet be spilt; still, this indiscriminate slaughter, this—" "But, Robespierre, her pardon—my wife's pardon." Taking a sheet of paper, Robespierre prepared to write, but paused a moment to enquire her maiden name. "Why do you ask?" said Marceau evasively. "It is necessary to constitute her identity." In a low voice, but firmly and distinctly, Marceau replied, "*Blanche de Beaulieu*." The pen fell from the hand of Robespierre. "What!" he exclaimed, "the daughter of the Marquis de Beaulieu, the chief of the insurgents in La Vendée?" "The same." "And how, then, became she thy

wife?" Marceau briefly explained. "Madman! young fool that thou art!" cried Robespierre furiously, "shouldest *thou*—." Marceau interrupted him: "I do not ask reproaches nor advice, Robespierre; I ask only her pardon. Will you grant it me?" "Marceau, will the tie of relationship, the influence of love, never induce you to betray the republic?" "Never!" "If thou shouldest meet the Marquis de Beaulieu himself in battle, face to face?" "I will fight him as I have done before." "And if he should fall into thy hands?" Marceau reflected an instant, and then replied, "I will bring him here, and yourself shall be his judge." "You swear this?" "On my honour." Robespierre again took up the pen. "Marceau," said he, "you have acquired, and deservedly, a high reputation; you have been fortunate enough to gain the goodwill of men. I have long and anxiously desired to know you." Perceiving the General's impatience, he wrote a few letters, then paused again. "Listen," he said, looking fixedly at Marceau; "grant me, in my turn, a hearing of five minutes. I give you a whole life for them; surely they are well paid." Marceau made a sign for him to proceed, and Robespierre continued. "I know I have been calumniated *to* you and *by* you, Marceau, and nevertheless you are one of the few men by whom I would wish to be known and understood; for what does the opinion of those whose judgment I scorn avail me? During the last three years three factions have, in their turn, agitated the destinies of France; the power of each was delegated to a single man, and each has accomplished the mission with which it was charged. The "*Constituante*," represented by Mirabeau, *shook* the throne; the "*Legislative*," headed by Danton, has *overthrown* it. The task of the present convention is immense; for it must not only finish the work of destruction, but remodel and rebuild the structure: and *this* glorious task it is *my* ambition to accomplish. If the Supreme Being but grants me time to perform it, my name will be above every name: I shall have done for my countrymen more than Lycurgus among the Greeks, Numa among the Romans, or Washington in America. If I fall before the time, having accomplished but half my work, I leave a stain upon my name which the other half would have effaced. The revolution will fall with me, and both be alike calumniated. This is what I desired to say to thee, Marceau; for I would wish, in all cases, by some few, at least, to have been understood, that all should not look on my memory with equal horror and detestation: and thou art one of them."

These, and such as these, were the arguments continually em-

ployed by this extraordinary and dangerous man, to exonerate his actions in the eyes of himself and his followers : and herein lay the chief secret of his popularity. He had discrimination enough to discover, and tact to make use of, such professions as were calculated to deceive and propitiate his hearers ; and he *never* lost an opportunity of so doing. His arguments were always full of specious phrases, though destitute of convincing reasons. But it was only in coolly reconsidering them that those whom he addressed felt this ; and he rarely failed to propitiate them, for the time at least, in his favour.

As he finished speaking, Robespierre affixed his name to the paper, and (with a smile such as he well knew *how* and *when* to assume) held it towards the young General. Marceau took the precious document, and warmly pressed the hand which gave it. He would have poured forth the thanks which rose to his lips, but tears choked his utterance, and he could not articulate a word. Robespierre was the first who broke silence. "You must be going," he said, "there is not a moment to lose. Adieu!" Marceau once more pressed his hand ; then flew down the stairs, and rushed into the street. His carriage was awaiting him with fresh horses ; and putting gold into the postillion's hand, he exhorted him to use all the expedition in his power, and flung himself back on the seat. What a terrible load seemed removed from his heart ! What happiness awaited him ! What a calm felicity would succeed the stormy troubles which had so lately surrounded him ! His imagination pierced into the future, and he pictured to himself the moment when he would throw open the door of that dark cell, and cry, "Blanche, you are free ! I have saved you ! Come, my Blanche, and by your love repay me the debt of life !" From time to time, however, a vague misgiving crossed his mind, and a cold shudder crept over him. Then he urges the postillions to redouble their speed ; promises them gold, rewards beyond their utmost expectations. The horses tear along, striking incessant sparks of fire from their hoofs ; and yet to his excited imagination they scarcely advance. No delays await him. Changes of horses are ready at every stage. Every thing seems to partake of the agitation which torments him. In a few hours he has left far behind Versailles, Chartres, Le Mans, La Flèche. He approaches Angers, when, all on a sudden, he experiences a violent and terrible shock. His carriage is upset, with a tremendous crash. Wounded and bleeding, he springs up ; severing the traces with his sword, he leaps on the back of one of the horses, and continues his rapid course with more

impetuosity than before. Angers, Varades, Ancenis are passed, his horse covered with foam, stained with the blood which still trickled from his own wounds.

At length the city of Nantes was dimly seen in the distance. Nantes, which contained his life, his soul, his whole existence. He encourages the wearied animal, which seems to understand his frantic exclamations, so well did it perform its arduous task. He enters the town—he is at the gates of the prison—his horse sinks under him!—what matter?—he is arrived! “Blanche, Blanche!” was the only word he could utter. “Two carts have this instant left the gates for the place of execution,” replied the porter, “she is in the first.” Marceau stood to hear no more. A terrible curse broke from his lips as, rushing wildly through the streets, he forced his way through the crowd, waving the paper over his head, and crying “Pardon, pardon!” He passed the hindermost cart. A well-known voice exhorted him to increase his speed. It was Tinguy who addressed him. In another minute he arrived in face of the scaffold. The executioner was holding aloft, by the long fair hair, the head of a beautiful girl! A fearful cry of rage and despair, in which all the strength of human passion seemed blended, rang through the ears of the astonished multitude. Marceau recognized the features of Blanche de Beaulieu!

E.

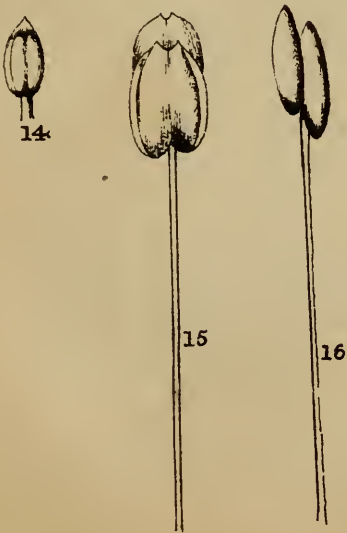
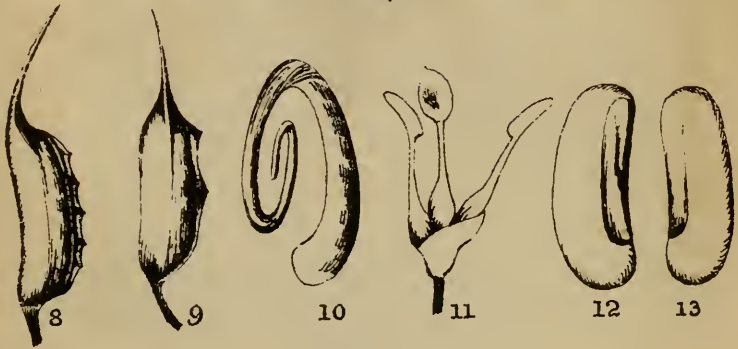
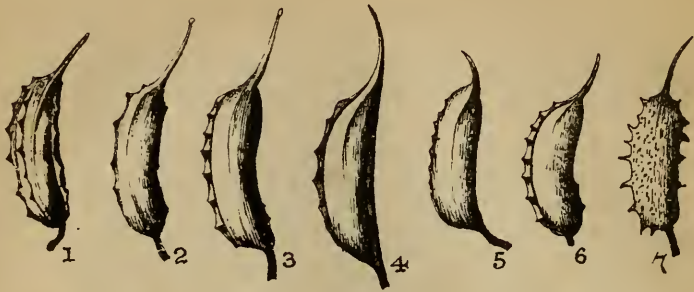
OBSERVATIONS ON THE SPECIES OF ZANNICHELLIA.

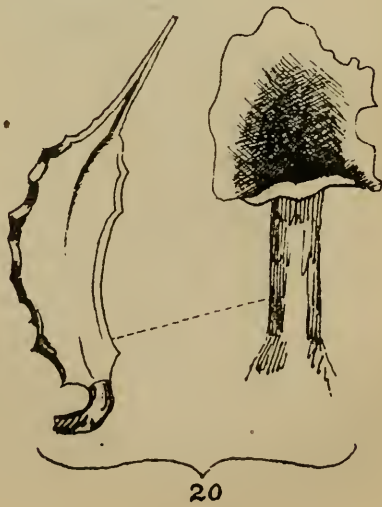
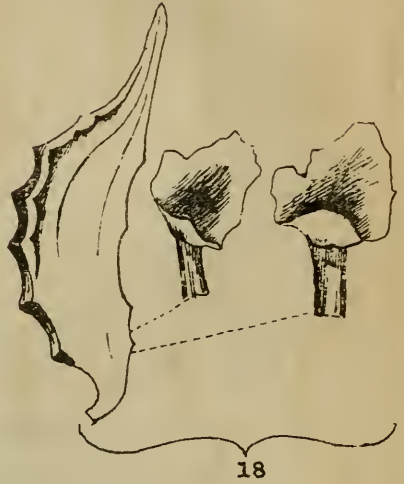
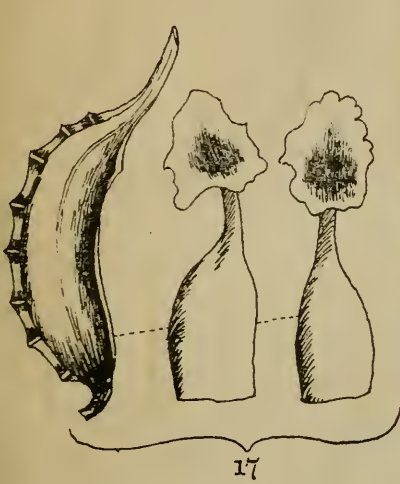
BY AD. STEINHEIL.*

WHEN Micheli established his genus *Zannichellia*, he made known two species of it which were found in the environs of Florence, and gave of each an excellent figure for that time. Linnæus adopted the genus of Micheli, but united the two species which that author had distinguished, and admitted only one species, under the name of *Z.*

* Translated from the *Annales des Sciences Naturelles*, vol. 9, p. 87, by W. A. LEIGHTON, B.A. F.B.S.E. &c.









palustris. He neglected to mention, in the description of the genus, the number of the cells of the anthers, and spoke only of the general form of the stigma; so that his description was equally applicable to the two species of the Italian botanist, of which the one has two-celled anthers, with a crenulate stigma, the other, four-celled anthers and an entire stigma. At a later period, Willdenow distinguished them afresh; he reserved the name of *Z. palustris* for the species with entire stigmas, and gave to the other the name of *Z. dentata*, founded on the character of the stigma. These species were adopted by Poiret in the *Encyclopédie*. Since then, it appears that the character of the anthers has been completely forgotten; and because in the fig. 32 of Micheli the denticulation of the stigma is exaggerated, and it can only be seen with a powerful magnifier, and is especially difficult to be recognized in a dried state, the *Z. dentata* has disappeared from the catalogues, not, indeed, without some appearance of reason, since Willdenow quotes improperly, as a synonyme of his *Z. palustris*, the t. 67 of *Flora Danica*, which belongs to the other species.

We continued, therefore, to call every plant *Z. palustris*, Linn. in which we recognized the characters of the genus; and in this it can scarcely be said that we were wrong, since Linnæus had wilfully confounded the two species of Micheli. Sprengel still makes mention of *Z. dentata*, but only as a variety of the common species.

Since the *Z. tuberosa*, Loureiro, evidently forms part of another genus, the present has been reduced to a single species; and that has happened to it which has occurred also to a great number of the Linnæan species which have been subjected to the more minute observations of modern botanists, many of them having been divided, and the primitive character of the species become frequently that of a whole group.

Bœnninghausen (*Prodom. Fl. Mon.* p. 272) in 1824 recognized anew two species of *Zannichellia*, one of which he calls *Z. repens*, reserving to the other, which appears to have since become the *Z. major*, the name of *palustris*, after the figure of the *Flora Danica*. Nolte (see *Reich. Fl. Exc. Genn.* i, p. 6) took this *Z. repens* for the *Z. palustris*, and distinguished two other species under the names of *Z. maritima* and *polycarpa*. Chamisso (*Linnea*, 1827) transferred into this genus the *Potamogeton contortum* of Desfontaines. Salzman brought from Tangiers a plant which he arranged under the name of *Z. disperma*, a name essentially bad, since derived from two carpels. M. de Brébisson, in his *Flora of Normandy*, has recently

described a *Z. digyna*, which had been communicated to him by M. Gay. We are also indebted to Reichenbach (*Plant. Crit.* vol. viii, and *Fl. Genn. Exc.* t. i, p. 7) for two other species, the *Z. gibberosa* and *pedunculata*, besides a *Z. major*, Bænng. which is not indicated under that name in the *Flora of Munster*.

In the midst of this increase of fallacious riches, the primitive species have been most completely forgotten; the one of them has entirely disappeared, and the other has become a doubtful plant with those who have been skilful in distinguishing the new ones, for of *Z. palustris* Reichenbach says, "*species ex iconibus cognita, cætera dubia.*" The confusion is greater still among those who believe that they are acquainted with it. Indeed, the instant we distinguish two species, we must adopt the names of Willdenow, because both the descriptions of Micheli begin with the word *palustris*. Now the *Z. palustris*, *W.* is most generally that which has been described as a new species, whilst the name has been reserved for the *Z. dentata*; these errors having proceeded from the total neglect of the study of the floral organs, and from the characters having been sought for only in those of the vegetation, but more especially in the carpels. The negligence in this respect has been so great that in the recent *Genera* (the authors having probably had at their disposal only one of the species) the anthers are described as two-celled, so that, on studying some specimens from Barbary, I at first imagined that I had established a new genus; and it is to the kindness of M. Gay that I am indebted for an interesting observation which has guided me to the truth.

The organs of vegetation can furnish only very uncertain characters, every one being well aware how greatly aquatic plants vary in this respect, according as the water is running or stagnant, fresh or salt, deep or shallow, &c. The *Z. major* is distinguished by a more vigorous appearance and more highly developed stipules; but the character of the fruit, which ought to coincide with this appearance, seems by no means constant, at least, in some specimens, certainly as strong as the *Potamogeton pusillus*, which I have examined; and as to the character of the leaves being almost always in threes,* it by no means distinguishes this variety, for it is frequently found in the others.†

* "*Folia fera semper terna*, Reich."

† We are indebted to M. Maire for the discovery of *Z. major* in the environs of Paris. He has also found it at Montmorency.

The fruit, which, according to the figures of M. Reichenbach (*Icon. Crit.*), appears to furnish such excellent characters, is by no means constant in nature, and nothing is more variable than the size of its dorsal membrane, which is also either very denticulate or nearly entire, the same specimen frequently presenting the greatest differences. Of the value of its modifications we may judge from our figures of the more remarkable forms. Fig. 1 belongs to a *Z. repens* from St. Cloud; fig. 5 to a *repens* from the environs of Carlsruhe, sent by M. A. Braun; fig. 6 to another *repens* from the environs of Paris. We perceive that, in the first instance, the dorsal margin presents three strongly denticulate membranes, and the anterior margin two much smaller membranes; in the second, the margin is simply crenulate; in the third, it has only a single denticulate membrane. The figs. 2, 3, and 4, belong to *Z. major*; the specimen from which the carpel No. 4 was taken, and which approaches most nearly the figure of Reichenbach, was found in the department of the Lower Rhine by M. Buchinger; 2 and 3 belong to the same form, but from the environs of Paris. Figs. 8 and 9 are the fruit of the same specimen of *Z. palustris*, *W.* brought from Algiers by M. Bové. If 9 had more teeth, it would correspond exactly with *Z. gibberosa*, *Reich.* which name we might be induced to apply always when the anterior margin is furnished also with a denticulate membrane; but I conceive that it must be reserved for plants which possess at the same time a very long style, because that author partly characterizes his species by the words *fructus macrostyli*, the length of the style being, in reality, the only character at all certain in the fruit; and, although this may vary slightly, it may be remarked that in the varieties with four-celled anthers it is always nearly equal to the carpel, whilst in those with two-celled anthers it only slightly exceeds the half of the carpel; it being clearly understood that our examination must be made when the fruit is mature, at which time it is the only character remaining to distinguish *Z. dentata* from *Z. palustris*, inasmuch as the stamens are then generally fallen and the stigmas withered.

Although the length of the style furnishes a sufficiently good character, it is not so with its direction; generally it is curved backwards, that is, its concavity is towards the back of the carpel, but in the same specimen it is sometimes found quite straight, or even curved forwards. Nevertheless, in all the species, it possesses one common character, that of being enlarged at the base, and bearing on one, at least, a projecting line, which is continued on the carpel sometimes along the middle, sometimes a little nearer to the back.

The dried stigma forms at the summits of the style a small hook, which frequently disappears; in the flower (see fig. 11) it is peltate, slightly concave, papillose, and crenulate, in some of the varieties, glabrous, entire, and somewhat narrower, in the others, which characters coincide with those derived from the length of the style and the number of the cells of the anther.

As to the length of the peduncles, we should not have thought it worthy of mention had not previous writers made use of it in forming species; for it furnishes only very unimportant characters, although it be sufficiently constant in the same specimens, appearing to depend on the state of the water, at least, the plant in which we have observed the longest peduncles, grew in a small brook of running water at Bone. The partial peduncle exists much oftener than the general one. It must be remarked that the employment of this character has led to confusion by forming a bad species out of a variety allied to the two primitive species; the *Z. pedunculata*, Reich. presenting, according to that author, two varieties, one *a*, *stagnalis*, the other *b*, which is the *Z. maritima*, Nolte. I quote the latter after Reichenbach, but as I have observed that *Z. palustris*, W. is almost always found near the coasts, whilst *dentata* grows in inland situations, I believe the quotation to be correct; and as the herbarium of the museum contains specimens of the two varieties, communicated by the author himself, I have satisfied myself that the variety *stagnalis* corresponds with *dentata*, and the variety *maritima* with *palustris*.

The number of the carpels is also very variable in the same specimens, appearing to be most constant when the number is small. They are frequently four in number, and groups of five are likewise found on the same stem.

I must caution the student against an appearance which the carpel presents when, by maceration, it has lost its epidermis; the dried cellular tissue is then exposed, and exhibits a tomentose aspect; the style appears larger and slenderer; and the back of the carpel, instead of being bordered with a denticulate membrane, is furnished with a range of minute isolated points, as represented in fig. 7.

The anther (see fig. 14) is oblong, two-celled, and surmounted by a minute point, or four-celled and biapiculate. This character appears very constant, though M. Gay has remarked that his *Z. digyna*, which has four-celled anthers, has them also, sometimes, two-celled.*

* This diminution in the number of the cells of the anther must not,

The length of the filament offers great variations. Having studied these species in a dried state only, in which the stamens are rarely found, I am unable to appreciate with exactness the value of these differences. In the variety which I have observed at Bone, the filament was nearly three inches in length; in the form named *repens*, I have found it nearly equal to the carpel; in the *major* it is three times longer; but M. Gay has remarked that the anther is at first sessile, and that the filament becomes gradually elongated, consequently I am induced to regard these differences of as little importance as those of the peduncles.

The embryo (see figs. 10, 12, 13) is similar in all the carpels, and such as authors have described it, viz. the cotyledon is folded back against the caulicule (*tigelle*) after having been twice folded on itself; the two latter folds, however, instead of being placed between the caulicule and the first portion of the cotyledon, in the same plane, are thrust out on the one side, so that, on examining the embryo on the other side, only a single fold is visible (see fig. 13), whilst the whole three are seen on this (see fig. 12). From the figure given by Reichenbach of *Z. polycarpa*, Nolte, we are led to imagine that the embryo of this species differs from that of the others, inasmuch as the cotyledon appears founded only on the caulicule (*tigelle*); however, as this is not sufficiently explained in the text, and as the figure agrees exactly with one of the sides of the embryo of other species, I am unable to fix my opinion with regard to this point.

From all that has been said, it appears quite clear that we must not recognize as species sufficiently characterized all the forms which have been lately described, nor must we imitate M. Koch, who regards them all as mere varieties of *Z. palustris*, Linn. (see *Syn. Flor. German. and Helv.* t. ii, p. 679); but we must return to the species of Micheli and of Willdenow, the others appearing to be nothing more than sub-species or mere varieties. I shall endeavour to refer them to their types, for which purpose I shall be obliged to adopt the names of Willdenow, which, however, are not those which

however, cause us to regard the character of the stamen as valueless; for, first, it appears to be very rare, since Smith says he had never seen *Zannichellia* in England otherwise than with four-celled anthers; and secondly, the contrary never occurs, at least it is probable, since all authors inhabiting the interior, and having at their disposal only *Z. dentata*, agree in describing the anther as two-celled. Treviranus had searched in vain (although he had directed his attention to this very question) for anthers with four cells.—See *Symb. Phyt.* fasc. i. Gott. 1831.

I should have preferred, inasmuch as his *Z. palustris*, growing in preference near the coasts, its name might lead us into error, since it would seem to belong with greater propriety to the other species. The name of this latter rests on a character very difficult to be seen; but I do not conceive that these inconveniences are of sufficient importance to warrant the introduction of new names.

In the following synopsis I shall cite few authors, because it is rarely possible to ascertain what species they are speaking of, though in general the locality is a tolerably good guide, but must not be depended on entirely; since the *Z. palustris*, according to Micheli, grows in the environs of Florence, and M. de Bœnninghausen says of *repens*, "*in fossis turfosis præcipuè salsis.*"

ZANNICHELLIA.—MICHELI AND LINNÆUS.

Z. palustris, Linn. species amplectitur duas.

I.—*Z. DENTATA*, Willd.

Z. antheris bilocularibus uni-apiculatis, stigmatibus crenulatis papillois; stylis in fructu maturato ovaris dimidio brevioribus.—Micheli, *Genera*, t. xxxiv, fig. 1; *Z. dentata*, Poir. *Encycl.*

Sub-species 1^a.—*Z. dentata repens*: stipulis intrafoliaceis fugacibus tenerrimis; planta gracilior sæpissimè repens.—*Z. palustris* β, *repens*, Koch. *Syn.* t. ii, p. 679.

- α. Carpellis sessilibus dorso crenatis.—*Z. repens*, Bœnnh. *Fl. Monast.* p. 272; *Reich. Ic. Crit.* 756; *Z. palustris*, Gärtner. *de fruct.* t. i, p. 19, fig. 6; *Ledeb. Flor. Alt. and Plant. miss. herb. Mus. Paris!*
- β. Carpellis sessilibus dorso marginatis dentatis.—*Rich. Ann. Mus.* t. xvii, pl. v, figs. 38 and 39.
- γ. Carpellis subsessilibus dorso cristis dentatis, tribus exasperatis et anticè membranaceo-dentatis.—*Nob. fig. 1.*
- δ. Carpellis pedunculatis dorso marginatis dentatis.—*Z. pedunculata*, α, *stagnalis*, *Reich. Fl. Excurs. Germ.* t. i, p. 7.

Sub-species 2^a.—*Z. major*: stipulis intrafoliaceis latioribus nec

tam fugacibus; carpellis subpedunculatis.—*Z. palustris*, *Flor. Dan.* 67; *Z. palustris*, α , *major*, *Koch. Syn.* t. ii, p. 679.

Planta fluitans, magnitudine Potamogetonis pusilli.

- α . Dorsi crista subcontinua.—*Z. major*, *Reich. Icon. Crit.* 758; *Z. palustris*, *Bænnh. Flor. Monast.* p. 272.
 β . Dorsi crista dentata.

Its size, and the appearance of its larger stipules on those branches which are not too old, are the characters which distinguish this subspecies; it is very easily recognized, and appears to be found in the deeper water. According to M. G. Drees, *Z. repens* is only a variety of *Z. palustris*, *Linn.* growing in calcareous water (see *Linnaea*, 1827, p. 237. The *repens* from the environs of Paris which we have seen, came from St. Cloud; and all the specimens from St. Gratien and from Montmorency which we have seen, belong to our *major*.

II.—*Z. PALUSTRIS*, *Willd.*

Z. antheris quadrilocularibus biapiculatis, stigmatibus paulum angustioribus integerrimis non papillois, stylis in fructu maturato ovaria subæquantibus.—*Micheli Nov. Gen.* t. xxxiv, f. 2; *Z. palustris*, *Poiret, Encycl.*; *Smith, Flor. Brit.* t. iii. p. 955; *Z. palustris*, γ , *stipitata*, *Koch. Syn.* t. ii, p. 679.

- α . Carpellis geminis longi pedunculatis; filamentis 2-3-pollicaribus. Fructus desideratur? circa Bonam Numidiæ vere 1833 legebam, sed exemplaribus amissis, ex icone et schedulâ haud sufficientibus plantam adhuc dubiam hinc refero.—*Nob.* fig. 16, 21.
 β . Carpellis geminis subsessilibus.—*Z. digyna*, *Gay in Brébisson Flore Norm.*; *Z. disperma*, *Saltzm. Pl. exs. in herb. Gay.*
 γ . Carpellis 3-5 plus minusve pedunculatis nonnuquam sessilibus.—*Z. digyna*, var. *tetragyna*, *Gay in herb.*; *Z. maritima*, *Nolte, Nov. Fl. Holsat.*; *Z. pedunculata*, β *maritima*, *Reich. Fl. Germ. Exc.* t. i, p. 7, in *Icon. Nost.* f. 8, 11.
 δ . Carpellis 3-5 pedunculatis in utràque margine membranaceo-dentatis.—*Z. gibberosa*, *Reich. Icon. Crit.* t. 759, and *Flor. Germ. Exc.* t. i, p. 7.

SPECIES NOT SUFFICIENTLY WELL KNOWN.

III.—*Z. POLYCARPA*, *Nolte, l. c.*—*Reich. Icon. Crit. t. 757, fig. 1004.* Stylis in fructu maturato ovariis ferè sextuplo brevioribus; etiam cl. Koch. ignota, species adhuc rarissima videtur.

The plant represented by Miller (*Ill. Syst. Linn. t. 77*) is regarded by Smith as *Z. palustris, W.*; according to Miller, it is found in Europe and in Virginia. From his figure, it has four-celled conical anthers; ovaries in number four, surrounded by a regular urceolus (*urcéole*), with three short teeth; and, lastly, the fruit, by the shortness of the style, reminds us strongly of *Z. polycarpâ, N.*: but on this point can we trust to the figure of Miller? We know, in other respects, so little of *Z. polycarpa*, that, if we should even have before us a plant resembling the figure of Miller, we should hesitate to affirm that it was really the species of Nolte. It is evident that Smith had never seen any thing like it, since he says he had seen only one species in England; and if he had found more he would have distinguished them, instead of confounding in the same quotation different figures. Plukenet (*Phytog. Lond. t. 102, fig. 7*) has represented a *Zannichellia* which may be equally taken for *polycarpa*; but it is impossible, even in less delicate characters, to decide after a figure published in 1691.

IV.—*Z. PERUVIANA.*—Ab unâ ex Europæanis fortasse non diversa. In aquis vivis lurini (*Herb. Mus. Paris*).

This plant exhibits nothing very positive in its fruit: the absence of the stamens prevents us from determining it with certainty. Perhaps it is a distinct species; perhaps only a mere variety of *Z. repens*.

V.—*Z. CONTORTA.*—*Cham and Schlecht, Linn. 1827, p. 231. Potamogeton contortum, Desf. Atl. i, p. 150.* In herbario floræ atlanticæ musæi Parisiensis specimen fructibus parvis et immaturis nobis incertam facit speciem.

We have little to say of the botanical geography of *Zannichellia*; these plants appear scattered throughout the whole extent of the temperate regions of the two continents, extending very far towards the

north, where one species, *Z. polycarpa*, apparently quite distinct, appears.

M. Fries appears to have found this species, as well as our two, in Sweden (*Nov. Flor. Suec. mant. prim.*); for he mentions the *major*, Bœnng. under the name of *palustris*, and the *repens*, although with doubt. His *pedicellata* evidently appears to be the *palustris*, Willd.; and, on the other hand, if the *Z. contorta* is a good species, the south will also possess its species. The *dentata*, W. has not yet been found in Barbary, but this may be accounted for by reason of little more than the coasts having been yet explored; and, as we have remarked, the varieties of *dentata* are generally found in inland situations, and those of *palustris* near the sea. Besides, these plants are of a nature easily to escape the researches of travellers, and consequently we are prevented from tracing with exactness the limits of their vegetation.

The difference in number of the cells of the anthers seems to us a remarkable fact, more especially as the number of these cells appears susceptible of variation in the same species, according to the observation of M. Gay. When there are four cells the anther is biapiculate, which renders it probable that, in this case, there are two stamens agglutinated. It is true that, according to Micheli, the anthers are sometimes found with three cells; but it appears to us that this difficulty may be easily overcome by supposing that in one of the anthers there is one cell abortive. A new genus from Madagascar (*Diplanthera*, Du Petit Thouars), published by Du Petit Thouars, entirely confirms our opinion, its stamens being formed of two bilocular anthers, situated on the same filament, but at unequal heights (see figs. 15 and 16).

If we reflect on this variation in number of the anthers and carpels in *Zannichellia*, and on the presence of the number four in *Ruppia* and *Potamogeton*, a number altogether abnormal in monocotyledons, we shall be induced to consider it as probable that the flowers of the Potameæ are spadices (*spadices*), and that each carpel or each stamen constitutes a flower; which will approximate this family to the Aroideæ, and remove it from the Juncagineæ, with which it has such affinity.

NOTE BY THE TRANSLATOR.

In *English Flora*, vol. 4, p. 70, Sir J. E. Smith remarks, “*Z. dentata* of Willdenow, separated by him, at my suggestion, from our British plant (*Z. palustris*), was long ago well distinguished by Micheli, t. 34, fig. 2; and if he be correct as to the two cells of its anther and the toothed stigma, nothing can be more distinct. It may probably be found in England.” From Hooker’s *Comp. to Curtis’s Bot. Mag.* vol. 1, p. 191, we learn that in 1835 a *Zannichellia* was found by Mr. J. E. Bowman at Gresford, near Wrexham, Denbighshire, and also by Mr. Johns in Cornwall, which corresponded with *dentata* in having the stigma large, membranous, and toothed, peduncle and pedicles of the capsules very short and nearly wanting, the anthers two-celled, and the embryo with 6–7 folds; whilst in *Z. palustris* the stigma was large and entire, the capsules pedicellate and seated on a distinct common stalk, the anthers four-celled, and the embryo with four folds. In the same year Mr. C. C. Babington collected in Needwood Forest, Staffordshire, specimens of *Zannichellia* with two, three, and four-celled anthers on the same plant. Sir W. J. Hooker, in commenting on the above discoveries, says that the latter considerably lessens the value of the character derived from the anthers; and that the toothing of the stigma being undoubtedly variable, and not confined to the sessile-fruited *Zannichellia*; that the folds in the embryo being also variable in both; and that the only constant character being the sessile or stalked fruit, which, however, forms no part of Micheli’s character of his original *dentata*, in which the capsules are equally pedicellate as in his *palustris*; he must conclude the *Z. dentata* of Micheli, Willdenow, and Smith, to be merely a variety of *Z. palustris*.

Possessing, through the kindness of my friends Bowman and Babington, authentic specimens of their plants, a careful examination of them has shown that the Gresford plant (see fig. 17) has the anthers two-celled, the stigma (a) peltate, slightly concave, papillose, irregularly crenulate or toothed; the fruit (b) nearly sessile, the carpels on very short pedicles, their dorsal margin with a denticulate membrane, and the anterior one with one or two distant teeth; and the style about half the length of the carpel, and variable in its curvature or direction. In Babington’s plant (see fig. 18) the stigma (a) is also peltate, concave, papillose, and irregularly crenulate or toothed; the fruit (b) nearly sessile; the carpels on very short pedicles, the dorsal margin bearing one distinct denticulate membrane, and having on each side of it, in the upper portion of the carpel, another interrupted den-

ticulate raised line ; the anterior margin more decidedly denticulate than in the Gresford plant ; and the style half the length of the carpel, and variable in direction. In specimens gathered by myself in 1832, near Cambridge (see fig. 19), the stigma is peltate, concave, papillose, and irregularly toothed ; the anthers four-celled ; the fruit and carpels, which are not mature, equally sessile as in the foregoing ; the margins denticulate, and the style similar in relative length. I also possess specimens from Dover (see fig. 20), in which the stigma (a) is peltate, concave, papillose, and irregularly toothed ; the fruit (b) nearly sessile ; the carpels on rather longer, but still very short, pedicles ; the dorsal margin with three denticulate borders, the central one most prominent, and the others somewhat interrupted ; the anterior margin distinctly denticulate ; and the style half the length of the carpel, and variable in direction. The anthers in the latter specimen I was unable to detect. In all these specimens the style is enlarged at the base, and bears a projecting line, which is continued along the middle of the face of the carpel.

The above results appear to militate strangely against the observation of M. Steinheil, that the entire stigma is accompanied by four-celled anthers, and the toothed one with two-celled anthers ; since in all our specimens, whatever are the number of the cells, the stigma is toothed. They all, likewise, coincide in the relative length of the style to the carpel, in the carpels being almost sessile, and their margins nearly similar in denticulation. Now, as it is admitted by Steinheil that the anther-cells are variable, in one instance at least, in the form with four cells, by the suppression of two of them, why may not the contrary be admitted, that the two-celled anthers are also liable to vary by an increase of one or more additional cells ? And from the above this seems plausible ; and as all our specimens agree in two other characters of Steinheil's *dentata*, viz. the toothed stigma and the style half the length of the carpel, we necessarily feel disposed to consider them all as forms of his *Z. dentata*, notwithstanding the variation in the number of the anther-cells. Without arrogantly presuming to decide confidently on a point in which the most skilful botanists are at issue, it may be suggested that those who possess the facility of examining living specimens, by which alone can the question be decided, would hasten to ascertain whether the only characters which confessedly appear at all constant, are in reality sufficiently so to constitute two good and distinct species, viz. the toothed stigma, and the style half the length of the carpel, in *dentata*, and the entire stigma, and the style nearly equal to the carpel, in *palustris*.

OBSERVATIONS ON THE ANIMALS INHABITING
MULTILOCULAR SHELLS,

CHIEFLY WITH A VIEW TO THE GEOLOGICAL IMPORTANCE OF THE SUBJECT.

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IN a former paper on this subject, which ended rather abruptly, in consequence of a page of MS. having been mislaid, I was proceeding, after certain general remarks, and some account of the family Nautilacea and two genera of Ammoneata, to describe the sub-genera of the important and widely-extended Ammonites; and it may be remembered that the first of these, the *Goniatites*, was the only one of which any extended account was given. Next in order, the *Ceratites* of de Haan were mentioned as occurring in the muschelkalk beds of the continent; and these differ chiefly from the *Goniatites* in the nature of the intersection of the chamber with the shell, which in the latter group is angular, whilst in the former it consists of a series of nearly regular curves, alternately semicircles and mere wavy lines. But there is a further difference, causing a nearer approximation to the true Ammonites, in this group; for, instead of the shells being very round and smooth, as the *Goniatites* almost invariably are, they begin to be provided with tubercles, acting as a sort of compensation for a flattening of the spiral, which generally occurs when these are introduced: for this flattened form, not being so strong with the same thickness of shell as the more rounded shape and more perfect arch of the other group, the tubercles or bosses are introduced, "superadding the strength of a dome to that of the simple arch at each point where these bosses are inserted."

Passing on now to the other Ammonites, we find the line of intersection already spoken of waved in a more and more complicated manner, till it resembles rather the edge of a parsley leaf, or the sutures of a skull, than any thing else one can compare it to, and at the same time the number of bosses or tubercles is increased, and additional contrivances for strength are introduced, the shell often becoming extremely fragile and the siphuncle very minute. In the chalk Ammonites especially the shell is very thin; and it is often a

* Continued from page 50 of the last number.

matter of some difficulty, even in large specimens, to discover whereabouts the aperture for the siphuncle is situated.

Now, with regard to the use of this extreme complication of the edge of the chamber, although it certainly seems to add much strength to the whole, there is a secondary object mentioned by M. von Buch, which we must not neglect to notice. He considers that the alternate projections and recesses thus formed must have given firmer hold to the mantle of the animal, and enabled it to retain, in safe and close connexion, the animal and its shell, notwithstanding the small size and inconvenient position of the siphuncle, which, in all probability, is of much use for this purpose in the Nautilacea. Following out the idea, he has traced a remarkable uniformity in the number and positions of the undulations throughout the whole genus of Ammonites. "I think," he says, "it may be considered a question definitively settled that in all species, whatever may be the apparent anomalies of form, it is easy to make out six principal lobes,* with other accessory lobes interposed, which all adjust themselves with wonderful regularity in the circumference of the shell." Between every pair of depressions or lobes there is a raised rounded part, the saddle; and these saddles always correspond in number and position to the lobes.

The system of lobes and saddles, so constant and disposed with such exact symmetry, appeared to M. von Buch to indicate an organization separating very decisively the two families Nautilacea and Ammonacea; and although, perhaps, the conclusions drawn from this view of the subject, and the sub-divisions proposed, are premature, and the facts already determined not quite so important as they have been assumed to be, still much good has been done by the mere convenient classification of so large a genus into distinct groups, which, indeed, our author goes so far as to call "une distribution claire, positive et utile, en familles naturelles."

We have one more remark to make on the Ammonites generally, before proceeding to the consideration of the allied genera. Their shells, it would seem, are usually thin, and the siphuncle small; but the former receive great additional strength by the number of ribs, as well as tubercles, not immediately connected with the septa, and fluting, as it were, the part most exposed to pressure; while the

* By the word "lobe" is designated the depressions which occur in the wall of the chamber of Ammonites, &c. caused by the successive bends of the undulations towards the aperture. The raised parts between these hollows are called saddles.

latter—the siphuncle—is often undefended, being almost always placed at the extreme dorsal edge of the shell, and sometimes actually outside it.

Lastly, with regard to the distribution of the remaining groups of this genus, it is important to observe that the period throughout the formation of the oolites was by far the most abundant, in every way, in species, as well as individuals. Even in the limited state of our knowledge of the animal kingdom at that time, we can speak to not less than a hundred and fifty distinct species, every one created, living its appointed time, and becoming extinct, between the commencement and close of that series of limestone deposits.

In all parts of the continent of Europe, as well as in Great Britain, the fossils of this genus are extraordinarily abundant; but they are not confined to Europe. Specimens have been found very high up on the Himalaya mountains, in Asia. They occur in the state of New Jersey, and in several other places in North America; in Brazil, and on the coast of Chili in South America: and probably, when future researches shall have laid open the scientific stores of Africa and Australia, other species will there be found, showing the genus to have been once as widely distributed as it was undoubtedly locally abundant.

It is rather singular that out of a number of allied genera, forming together an important natural family, one genus should be among the most widely spread of any that is known, and all the others comparatively very rare, and occupying no important place in the scale of nature. Yet so it is in the case before us; for the Ammonites are not more remarkable for their singular variety and great numbers, than the several genera, closely allied in every thing but external form, are for the very narrow limits within which they are confined. The Hamites, next in order to the Ammonites, are not, indeed, quite so rare as the Scaphites or Turrilites already described; but still they are only met with in a few strata, and in but one of those are they at all abundant. Of the different species known, two occur in the continental beds of the oolites; one so low down as the lias, while there are nearly thirty in the cretaceous group, most of them occurring in the two beds of green sand.

Of the Baculites, which come next, five species only are named at present, and all appear to have lived during the deposition of the chalk. The difference between these two last genera consists, to all appearance, in a very unimportant change of form, the Hamite being, as we have already observed, bent round more or less at the smaller extremity or apex of the long, narrow, and often elliptical

cone, which is the simple and ordinary form of the Baculite. Both are sometimes ribbed, though the latter rarely; and in both the edges of the septa are very complicated. The shells of both, too, are commonly rather thin, the siphuncle not large, and the complete fossil, especially of the Baculite, extremely rare.

So much for the external form of the shells referred to the great natural family Ammonoata; a family which deserves well the consideration of the palæontologist, since of all others it is, as we have already remarked, the most widely spread, the most characteristic of several formations, and which is, moreover, just so nearly allied to living types as to excite our curiosity, and raise our hopes that something may sooner or later appear, some new discovery or closer observation made, by which our speculations may be tested, and their truth or falsity proved.

With a full knowledge, then, of the danger of too rash generalizations, and wishing it to be clearly understood that our theories and attempted analogies are rather thrown out with a view to excite inquiry than with any expectation of satisfying doubts, or still more of deciding dogmatically on any disputed point, we will proceed to the consideration of the following queries, viz. how far the analogies traceable in the shells of the Nautilacea and Ammonoata are indicative of analogous habits, and to what change of habits of the animal the alteration of structure in the two families may most probably refer.

Now, that the subject may be more perfectly understood, let us here just repeat, in as few words as possible, the most important both of the analogies and differences, because, when they are thus put in apposition, our plan of considering the matter will be more clear to the reader, and its value, however small, more truly appreciated.

The shells, then, of the two families, are, in all cases, multilocular, the chambers being filled with air during the life of the animal, and forming then a mass not very different in weight from the weight of an equal mass of water. In other words, the shell would float of itself under the ordinary conditions. Besides this, the walls of separation of the chambers are always pierced with a hole larger or smaller, through which a tube has passed, communicating with the interior of the animal. There is, in all the species, considerable regard paid to the general strength of the shell in some way or other, more especially where the animal is no longer present, for the empty cells are stronger than the outer one, which is, in most the only one inhabited.

Such are the analogies: the differences are sufficiently remarkable, and refer chiefly to the walls of separation or septa between the chambers, the siphuncle or tube running through the chambers, and the peculiar methods adopted to strengthen the resisting power of the empty cells.

The first difference is that relating to the septa. In the Nautilacea these are simple plates, concave outwardly, and presenting a nearly regular curve in their intersection with the shell. On the other hand, they are in the Ammonoata, always more or less circular in their form, and the line of intersection varies from a kind of zig-zag, to as complicated a curve as can be imagined to exist. There is, thus, in the species of this family, a contrivance by which each internal transverse plate, presents a much longer line for the shell to press against, or, if you will, offers a much greater number of points of resistance than in the more simple-formed Nautilacea.

The next point of difference to be attended to, is in the siphuncle, and it is one both of position and magnitude. In the genera of the first family, this important part is sometimes ventral, or on the inner margin, more frequently central, and is very rarely observed to approach the dorsal or outer margin. On the other hand, it is almost always very near the dorsal margin in the Ammonoata, and sometimes is actually placed outside, in a channel opened for it, and projecting from the back of the shell in the shape of a keel. The difference in size is not so constant; but it is not, certainly, too much to assert, as a general rule, that it bears a very much smaller proportion to the area of a section across the chamber in Ammonites and their congeners, than in the Nautiloid forms. The siphuncle, then, is, on the whole, more undefended, and apparently less important, in the former than in the latter.

Lastly, there is the difference of plan resorted to in the two families to accomplish the same purpose, that of giving a degree of strength not found in other shells. In Nautilus, and generally in the Nautilacea, the most simple means are employed. The shell is tolerably thick, the whorls often successively envelope each other, and the surface exposed forms a tolerably strong single arch. Not so is the case with most of the Ammonoata. The shell is usually extremely thin, even in the very large species; the whorls do not, or at least very rarely, envelope; and the spiral disc, being flattened, as it often is in the transverse section, is frequently elliptical, and sometimes almost angular. But now for the compensation. Instead of a simple arch, we have one which is fluted; and we find a set of contrivances, consisting of ribs and domes, with transverse

plates supporting them along a wavy line sometimes eight or ten times as long as the perimeter of a section, and all this without giving to the shell an increase of weight at all inconsistent with the supposed habits of the animal. It should not, however, escape notice, that the additional strength would only avail against regular pressure, while the diminished thickness would render the shell more susceptible of injury from accidental causes, than the more simple covering of the *Nautilus*.

These being the points of difference, let us now consider their comparative importance, and then proceed with a few speculations, with which this part of our subject will be concluded.

Referring, then, to a former part of this article, where it was endeavoured to give an outline of the comparative anatomy of the *Nautilus*, it will appear that, since in that animal the siphuncle passes between important viscera and enters the pericardium, we are at liberty to conclude that it serves very necessary purposes in the animal economy; for otherwise, according to all principles of analogy, there would not be so much care taken for its preservation, nor would it be connected with such vital organs. Also the position, as well as the magnitude, of that curious tube, is a question of some importance; for it could not pass through the same viscera, or indeed into the pericardium at all, when ventrally or dorsally situated, without making rather a sharp turn upwards or downwards. Again, since the mantle in the *Nautilus* covers that part of the body of the animal within the shell, and is attached by two lateral muscles only, it is fair to suppose that the connexion with the siphuncle was not entirely useless in assisting to make a central fastening, without which the two lateral ones could hardly be sufficient. Now, in all the forms of which the *Ammonite* is the type, there was a more or less irregular shape, to which the mantle could more easily fasten itself than to the smooth cup which forms the outer chamber of the *Nautilus*; and the alternate indentations and projections in the septum, together with those in the ribs and tubercles of the shell, must have kept the shell well attached without much assistance from the siphuncle.

Taking into consideration, then, the uses of this tube, both as a means of altering the specific gravity of the whole mass, and also as a string by which the animal inhabitant was steadied in its abode—remembering that in the *Nautilus* and its congeners it is, almost without exception, tolerably capacious, and could have entered the body without much difficulty and at small disadvantage, while in the *Ammonata* the size is diminished, and the mechanical disad-

vantage of entering at a sharp angle is considerable—remembering also the flattened shape in the latter family, and the amount in which it differed from *Nautilus* in its other proportions, and at the same time not losing sight of the numerous analogous points—it will probably be admitted that the anatomical and physiological structure of the types of the two principal families of Cephalopods must have been, on the whole, a good deal alike, differing, however, probably, in some not unimportant points; and then comes the question of more general interest, and more fit, indeed, for discussion—How did this change show itself in the habits of the animal?

It must not be supposed that I have been making these extended remarks with a view of preparing the reader for some grand theory to which I am about to advert; my object has rather been to give an account of the methods of reasoning by which naturalists have come to the conclusion that Ammonites, Hamites, &c., belonged to animals, in all probability, nearly allied to, and yet distinct from, those inhabiting the *Nautilus* and other shells, bearing considerable resemblance in outward form. It is well that these foundations of opinions should be generally understood; for it is by no means the case that a mere superficial resemblance is at all sufficient to prove that a real affinity exists.

Now with regard to the change of habits. The animal of the *Nautilus*, we know, floats occasionally at the surface of the water; but from the remains of food which have been found in the stomach, and also from its occurring generally near sandy shores, there seems a great probability that it feeds on the small crustacea inhabiting the bottom, at no great depth of water. It will be clear that the larger the size of the siphuncle the more rapidly could the specific gravity of the mass be changed, and an upward or downward motion communicated, and thus that the *Nautilus* is peculiarly fitted for shallow sandy and muddy bottoms, and the neighbourhood of small islands. It seems, however, equally evident that the animal would never be very likely to burrow in the mud or be enveloped in it, endowed as it was with powers of locomotion to a considerable extent.

Now, during the deposition of those extensive beds which compose the oolitic formation, and which we have already mentioned as peculiarly rich in Ammonites, the bottom of the sea must have consisted chiefly of calcareous mud; and there is good reason to suppose that while the deposition was going on the depth of water could not have been very great in the places where the Ammonites are found, for along with them there occur numerous organic re-

mains extremely perfect, which we know, as far as analogy can make us certain, could not have lived at extreme depths. The same may be said of the chalk formation, with regard to the deposition of mud that it must have formed; and it seems pretty certain that animal life, for the most part, ceases to exist at any thing like deep water, just as on high mountains there are very few species which live and perform their functions.

- It seems, then, not unreasonable to suppose that, since Ammonites and the allied genera are better adapted to resist regular pressure, but are more exposed to accidental injury than the Nautilacea—since, too, their siphuncle is generally smaller, and not so advantageously placed as in that family, but sometimes a mere thread, totally incapable of being employed as a means by which the animal could alter its depth in the sea—since, too, the Ammonites seem to have been abundant during the deposition of strata of calcareous mud—putting all these matters together, may we not venture to suggest that the animals of this family were, for the most part, the constant inhabitants of the bottom of the ocean in moderate depths, living there in the thick mud upon the numerous shell-fish and shell animals of all kinds, which we know to be very plentiful in such places?

The difference of habits, then, that we conceive to have existed, amounts to this: that while the Nautilus and its congeners were capable, probably, of coming to the surface, and even of feeding there occasionally, though upon the approach of danger they would immediately sink by means of their large siphuncle, the Ammonæata generally were more confined to the bottom, burrowing, perhaps, more or less, in the soft mud, and seldom wandering from their ordinary habitats while they could subsist quietly on the nourishment they found there.

Of course, this general conclusion is not expected to include every particular case: there are Ammonites with large siphuncles, and Nautilacea with small ones. The genus *Endosiphonites* approximates to Ammonites in external form and the existence of ribs on the shell, although it has a large siphuncle; while, on the other hand, many *Goniatites* resemble Nautilus so closely in every thing but the siphuncle, that, were it not for the almost total absence of that organ, we should find an example of analogy to an unusual extent. Still the exceptional cases are not more numerous than in other branches of natural history, where a great majority of known facts is always considered sufficient foundation for theorizing.

If it is admitted, then, that the structure in the great family

Ammonoata indicates habits, on the whole, more stationary than those of the Nautilacea, let us return now to the different genera, as they have been already described, and see what particular results we may obtain from studying their change of form with a similar view. And first the Turrilite, which is so very fragile and easily injured a shell that I do not know of the existence of one perfect specimen of any size, and that even a tolerable specimen is extremely rare. This shell, however, grew sometimes to an enormous size; and if we can even suppose that its slender siphuncle could have contained fluid enough to alter the specific gravity of the animal and shell so much as to produce motion upwards or downwards, still, when we know that the slightest touch would cause a fracture, it seems improbable that such unnecessary danger should be incurred; and we conclude, surely not without reason, that this genus, at all events, was a constant inhabitant of the bottom, and that the soft mud enveloping the shell would be at once a defence and a place of concealment. The tubercles and other mechanical means by which the shell is strengthened against external pressure would, it is manifest, be very useful in resisting the weight of the superincumbent and surrounding mud.

With regard to the next genus—the Scaphite—it is exceedingly difficult to give any rational hypothesis, not only as to how, but even where, the animal could have lived. In most specimens that I have seen, the shell somewhat resembles a small Ammonite with the last whorl or two unwound, a small part extended nearly straight, and the rest bent round to meet the direction of the former whorls. Supposing this to be the complete shell, we can conceive the inhabitant living in the part unwound; and the fact of its bending again in a contrary direction, though curious and anomalous, is not unaccountable. But there is a far more extraordinary form sometimes met with; and here we seem almost completely baffled. It may be thus described: after the bend already spoken of has taken place, and the mouth of the shell has been brought round so as to be close to the principal spiral, the exudation of shelly matter seems to have gone on, and gradually approximated the aperture to the part opposed to it, at the same time diminishing the area of the aperture, and almost closing up the last chamber. Whether this is an accidental occurrence, arising from a diseased state of the animal, or whether there was some provision of nature to allow food to be taken and the animal functions to continue, are questions hardly to be answered in the present state of our knowledge. I must acknowledge myself quite at fault on the subject. On the

whole, however, since the shell of the Scaphite is compact and strong, and the siphuncle often of moderate size, it may have belonged to an animal with some power of locomotion ; and this seems the more probable from its occurring in a fossil state most commonly in the green sand formation, and not when the bottom of the sea could have had much mud for animals to burrow in.

The Ammonites, of which we have already said so much, need not now detain us long. The Goniatites have the siphuncle nearly always so extremely small that one cannot, with any degree of probability, suppose it to have served any very useful purpose. Of the other groups, some have also a mere thread, instead of an extensible tube ; while in others the organ is larger, and doubtless was of more importance to the animal : but the number of these latter is not, I think, great in proportion to the whole, and, for the most part, it seems probable that Ammonites were not endowed with great power of locomotion.

The Hamites, perhaps, with Spirula, and other genera of which the whorls are not contiguous, must be ranked among internal shells. If so, the animal, in all probability, swam freely in the water ; and from the comparative abundance of the fossils of this genus, some of them extremely large, the former owners doubtless worked great havoc on the population of the ancient seas of the period at which they lived. It may be observed here, by the way, that, although the species of this genus are not very numerous, the individuals of these few species seem to have been unusually plentiful ; and although perfect specimens are rare, there is hardly a more common fossil in the greensand than the broken pieces of Hamites, some of them measuring as much as four or five inches in the diameter of the chamber.

Coming now to the Baculites, we have a shell at least as fragile as the Turrilites, and of a shape still more exposed to injury from the slightest touch. The siphuncle, too, is extremely minute ; and nothing can be conceived more delicate than the whole appearance of the fossil. There are, however, specimens in the most beautiful state of preservation, and far more complete than any that exist of Turrilites. Probably the shells of this genus, as well as of Hamites, were internal ; but it would seem not unlikely, both from their remains occurring only in the chalk, and also from the unimportance of the siphuncle, that the shell merely formed a light skeleton, covered by the mantle of the animal, and that the necessary prey was obtained chiefly from the crustacea and shell-fish in the calcareous mud.

Such is a slight aperçue of two great families of multilocular shells, the Nautilacea and Ammonoata. Each genus has been considered, both separately and in connection with the others; and it has been endeavoured all along to direct attention to general views, rather than to attempt a minute and technical description of any portion which might seem more peculiarly interesting. It would have been easy to enlarge on the mechanical contrivances in Ammonites, and on the physiology of those animals alluded to of which we have knowledge; but these matters have been already ably discussed, and my object was different. I wished to communicate information, correct, and not too technical, on a very important subject, and to show how far generalization had gone, and to what extent the field was still open: My own ideas are, perhaps, merely fancies, but, such as they are, I let them go forth, trusting that others better able to theorize may also be induced to express their opinions. I now leave this part of my essay, and proceed to the consideration of another family of Cephalopods, called by D'Orbigny "Peristellata" but by Professors Agassiz and Buckland, with more propriety and meaning, "Belemnno-sepia." This latter name has been given since the discovery of a portion of the animal approximating it very nearly to other sepia, from which, however, it differs in the *βελιμωνος*, or *dart*-shape of the stony skeleton, which has long, for that reason, been denominated Belemnite.

AN HISTORICAL SKETCH OF FRENCH
LITERATURE.

III.—ON THE JONGLEURS, AND ON THE COMPOSITIONS
OF THE TROUBADOURS.

“ Quand les tables ôtées furent
Cil *jugleour* in pres esturent
S'ont violis et harpes prises
Chansons, sons, vers et reprises
Et de gestes chanté nos ont.”

Roman du Tournayement de l'Antichrist.

IN comparing a number of poems by various Troubadours, we cannot avoid being struck with their great similarity; and we immediately observe that one and the same poetical character pervades the whole series: we might imagine them to be the productions of the same poet, executed at different periods and in various moods. There are, it is true, some few striking exceptions: thus, for instance, the glowing and unaffected ardour of Bertrand de Born is easily distinguishable from the frigid and formal affectation of Arnaud Daniel, and this, again, cannot be confounded with the far-fetched witticisms of a Marcabrun. Yet the same spirit pervades their whole literature; we recognize in all their works the same similes, the same metaphors, and the same gallantry. History has recorded no one Troubadour who far outstripped his fellows, no poet who effected any decided improvement in the language; on the contrary, the expressions used by William IX, Duke of Poitiers, the first of the Troubadours, are again observable in the productions of Giraud Riquier, who was the last. All the Provençals are, in fact, equally entitled to fame; there were not wanting among them minds which bore the germ of a more elevated originality, which might, under other circumstances, have been fully developed; at that period, however, the Troubadours had established a certain mode of thinking and certain forms of poetry, to depart from either of which was an unpardonable offence—an offence the perpetration of which was reserved for a Brunetti Lattini, and in a still greater degree for his pupils, a Dante, a Boccace, and a Petrarch, who, throwing aside, as does the liberated cap-

tive his fetters, all formal and scholastic rules, gave the death-blow to the Provençal, and soon caused its beauties to be totally eclipsed in the dazzling and surpassing brilliancy with which they endued the Tuscan.

With but few exceptions, the Troubadours appear to have been merely the children of nature, uninformed by books, unacquainted with Latin, the ecclesiastical language, and defective in address. The delicate tracery and the elegant simplicity of the classic fictions* seem to have been almost altogether unknown to them; and we find that their imaginative flights are dull and insipid, consisting merely of the objects which immediately surrounded them. Simplicity is the characteristic mark of all their poetry, and we very seldom find any allusion to extraneous sources. This is, perhaps, best seen in their pastorals: in these compositions they crowded together "the foliage of the trees, the fragrancy of the flowers, the resplendency of the sun, and the warbling of the birds,"† without ever attempting to form a pleasing or a striking picture. Born and bred in courts, however, we may easily conceive that they would have little relish for the beauties of a country life; and though they sometimes attempt the pastoral style their compositions are very inferior, and we find that

* Ovid appears to have been the only classic poet of whom they had any knowledge; his name frequently occurs in their productions, but they do not appear to have studied the beauties of his fables.

"Mas *Ovidis* retraits,
Qu' entre' els corals amadors,
Non paratge i a ricors.
' Mout eran doutz.'"

ARNAUD DE MARVEIL.

"Qu' *Ovidis* ditz en un libre e no i men,
Que per sufrir a hom d'amor son grat."

RICHARD DE BARBÉSIEU.

See, also, Diez, *Poesie der Troubadours*, pp. 126-7.

† Bertrand de Ventadour affords one of the most favourable specimens of this style of composition. We have superadded a literal translation.

"Quau la vertz fuoilla s'espan
E par flors blanqu' el ramel
Per lo dolz chan del auzel
Si va mos cors alegran;
Lanquant vei los arbres florir,
Et aug lo rosignol chautar
Adone se deu ben alegrar
Qui bon 'amor saup chausir."

When the leaves grow green
And the boughs are loaded with blossoms,
By the sweet warbling of the birds
I feel my heart rejoiced;
But if the trees are in flower
And the nightingale sings,
Then may he well rejoice
Who experiences an honourable love.

they generally forget the subject, and are glad to return to the more congenial topics of chivalric life.

Though the Troubadours sometimes recited their own compositions, these were generally sung by the Jongleurs, who attended them in an altogether inferior capacity. The Jongleurs* (*joculatores, mimi, histriones*)† appear to have been of much earlier origin than the Troubadours, as we find that, even in the ninth century, their licentiousness and immorality was severely censured by the chroniclers of that period.‡ Charlemagne, in the first capitulary of Aix-la-Chapelle, speaks of them as persons branded with infamy, and expressly forbids their admission into convents. They appear, in fact, to have been the strolling players or mountebanks of the period; and, roaming from castle to castle, they were always heartily welcomed, and amply rewarded with horses, clothes, and money. A song or a romance was the only pay given for the most sumptuous entertainment; thus, Jean de Chapelain, in his *Fabliau du Sacristain du Clugny*, assures us that in Normandy this was the only reward that was ever given to the host.

“Usage est en Normandie
Que qui hebergié est qu’il die
Fable ou chanson a son hoste;
Ceste coustome pas n’en oste
Sire Jehans li Chapelain.”

The Troubadours, as well as the Jongleurs, attempted to perpe-

* There have been many opinions in regard to the etymology of this word. M. de Ravalière ingeniously derives it from *ongle*, a nail, *ongleur*, a thrummer of instruments with the nail; as most of the instruments then in use were played with the fingers.—Ravalière, *Poésies du Roi de Navarre*, tom. ii, p. 255; Burney, *Hist. of Mus.* vol. ii, p. 267.

† There appear to have been several orders of Jongleurs. Thus, when they recited the numerous romances of the day they were called *Contaidres*, or *Discours*; when they imitated the sounds and voices of animals they were called *Contrafazedors*; and when they performed dramatic pieces they were termed *Mimes* or *Histrions*.—Diez, *Poesie der Troubadours*, pp. 45—46; De La Rue, *Hist. des Jongleurs*, &c. vol. i, p. 104.

‡ “Nescit homo qui histriones et mimos et saltatores introducit in domum suam, quam magna eos immundorum sequitur turba spirituum.”—Alcuinus Albinus, ep. 107—836. “Inebriat histriones, mimos turpissimos turpissimosque et vanissimos joculatores Agobardus.” See also Du Cange, under *Jocista, Jocularis, Jocular, Ministelli*; Muratori, *Antiq. Med. Evii*, tom. ii, p. 832; Diez, *Poesie der Troub.* p. 15; Percy’s *Reliques of Ancient Poetry*, vol. i.

tuates this universal hospitality; and the motto, "To give is nobler than to receive," frequently occurs in their poetry. Deude de Prades says, "It is truly pleasant to benefit the good, to honour Jongleurs, to love good company, and to give before one is asked."* On the appearance of the Troubadours in southern France the Jongleurs appear to have attached themselves to that body; their principal occupation was to recite the *treuves* of the Troubadours, which they accompanied with instrumental music.

The number of instruments a knowledge of which was necessary for the expert Jongleur, is almost incredible. Giraud de Calanson, a Jongleur, or rather self-elected Troubadour, in a *sirvente*, which has been translated in his usual happy style by Burney,† numbers upwards of ten; the harp, the guitar, and the *vielle*, which was played with a bow, and appears to have been very similar to the violin of the present day, were, however, most in use. Besides the compositions of the Troubadours, the Jongleur was expected to recite the metrical romances and tales which the vicissitudes of the times rendered so numerous. He was also required, during the intervals of the songs, to amuse his auditors with a thousand ridiculous feats. Giraud de Calanson, in his *sirvente*, says that the Jongleur must be able to "throw and catch little balls on the points of knives; that he must imitate the songs of birds, exhibit attacks of castles, leap through hoops, and show the performances of tamed monkeys." Thus prepared by the advice and example of one of the most illustrious of their body, the Jongleurs pursued the most grovelling and degrading occupations, and soon became the mere buffoons and laughing-stocks of an ignorant multitude. Though debased in profession, they appear to have greatly increased in numbers, as we find that, at the end of the reign of Philip Augustus, they formed corporate bodies in nearly all the towns in France, had certain privileges allowed them,‡ and had chiefs over

* "Joios soi eu et ai mestier,
De far plazer a bona gen,
D'onrar joglars, d'amar joven
De dar enans qu'om no mi quier."

(*Parnasse Occitanien*, p. 86). The Dauphin d'Auvergne, who was also bishop of Clermont, a man of immense wealth, appears to have carried his hospitality to such an extent as to sacrifice nearly the whole of his fortune. "E per larguesa soa perdet la meitat e plus de tot lo sieu comtat."—Raynouard, *Choix des Poesies des Troub.* vol. v, p. 124.

† *Hist. of Music*, vol. ii, p. 270.

‡ Their principal privilege appears to have been their exemption from

them, whom they called "Rois de Jongleurs." In process of time the Troubadours appear to have been confounded with the Jongleurs;* and it is to this too close connexion with this degraded class that they themselves ascribe their ultimate decay. To so great an extent did they carry their licentiousness and depravity, that Philip Augustus, their great and generous patron, whose court resounded with their songs, involving Troubadours and Jongleurs in the same disgrace, banished both from his court;† and though they were shortly afterwards recalled, a stigma always remained attached to their order, a brand which neither an increased austerity of morals, or redoubled efforts of genius, could ever entirely efface. If, in addition to these causes of decay, it be remembered that at this period, the attention of all lovers of poetry was so forcibly attracted by the compositions of the immortal Italian trio; if it be remembered that the Tuscan language, imbued with the choicest beauties of the classic fount, was

tolls at the entrance of all towns, provided they sang a song and made their monkeys dance to the tollman: hence arose the well-known proverb, "*Payer en Gambades et en monnoie de singe.*"—Burney, *Hist. of Music*, vol. ii, p. 273; De la Rue, *Essais sur les Jongleurs*, &c. vol. i, p. 118.

* Rambaut de Vaqueiras, a man of noble descent, and an especial favourite of the Marquis of Montserrat, by whom he was knighted, gives himself these appellations:—

"Et es razos qu'eu mi podetz trobar
Testimoni, cavalier e joglar."

(Raynouard, tom. ii, p. 262). Pierre d'Auvergne, in a satire, which he expressly states to be directed against certain of the Troubadours, shortly afterwards, particularizing some of that body, calls them Jongleurs.

"Chantarei d'aquetz trobadors."

He afterwards says—

"E'l quartz de Briva'l Lemozis
Us joglaretz pus prezenlis . . .
El seizes N'Elias Gausmars
Qu'es cavayers e—s fai joglars."

(Raynouard, tom. iv, p. 297).

† It is on account of this disgrace that we never find any eulogium of this monarch in the productions of the Troubadours: his name appears, in fact, to have been studiously omitted in all their poems, as we find copious mention of all the other monarchs of that period. Their banishment took place in the year 1181.—De La Rue, tom. i, p. 247; Rigord et Megeraz, *ad ann.* 1181.

encouraged and cultivated by men whose productions are now, as they were then, the wonder and the admiration of the world ; if these adverse circumstances be duly remembered and carefully weighed, we shall then clearly see the reasons of the rapid decay of the Troubadours ; we shall then observe the causes of the extinction of a school of poetry which, useless and trivial as it has been thought by many, may be regarded as the twilight of modern excellence. And though the songs of the Provençals contain no exquisitely given morals or beautifully turned metaphors, let us never forget that they introduced a love for reading and a taste for poetry, and that the firm and solid foundation, on which the literature of the present day is based, had its origin with the Troubadours.

The compositions of the Troubadours are altogether lyric ; and we are astonished to find that, despite the love of poetry which seized, as it were an epidemic, the whole nation, they have not made a single attempt at an epic or a tragic style. The education of the Provençals was altogether calculated to render them enthusiasts ; this feeling was, in fact, the ruling passion of the age, and we have seen that the "*preux chevalier*" was ever taught to be enthusiastic in religion, in love, and in war. Enthusiasm also is the leading characteristic of lyric poesy ; this feeling it is which, if properly directed, fires the imagination of the poet, animates the dormant faculties of his mind, and hurries him into those impetuous transports of fancy which, soaring far beyond all definite limits, produce those fascinating effects which far transcend the regularity of the most studied compositions. Under its benign influence, descriptions rich, happy, and sublime, expressions noble and harmonious, metaphors striking and lively, spontaneously arise to captivate the imagination and enchant the mind of the reader : and the man of genuine taste cannot read or hear a production of this divine enthusiasm of the mind without feeling some of that poetic rapture which produced it.

The literary relics of the Troubadours have, by criticism, been divided into the gallant, historical, satirical, didactic, and pastoral. Their gallant or love poems are, perhaps, their most numerous performances, but have not now much to recommend them. The spirit of chivalry is everywhere perceptible ; and we find an enthusiastic and almost idolatrous love of the fair sex. The tender passion is, however, generally, grossly misconceived : the lover's was a mere trial of wit, in which sentiment played round the head, but came not near the heart. It is also much to be regretted that too many of

this class of poems bear the stamp of undisguised libertinism,* and but little accord with the refined feelings of the present day.

Their historical pieces, as their name imports, were illustrative of the history of the times. Useful as these productions doubtless were, their utility might have been greatly increased had they been more select in their subjects, or more exact in their narration; as the only other chroniclers of the age were the monks, who, buried in their convents, were totally unacquainted with life, and were generally as superstitious as they were ignorant. These compositions are, however, chiefly valuable as tending to display, in the most distinct and simple manner, the customs, habits, and sentiments of the times. When these are the productions of men illustrious by birth, station, or merits, they acquire a two-fold interest, and may truly be handed down as the choicest relics of the age. The *servente* of Richard in his German prison, and several others of the same class, present the most natural, the most "naïve" picture of the sentiments and characters of their authors, and are, therefore, subjects of the greatest interest.

Their satirical productions are numerous, and are often of the greatest value. They, however, too frequently misused the lash, and condescended to compose personal invectives and injurious attacks against the enemies of their present patron, their rivals in verse, and not unfrequently against the ecclesiastics of the period. The poets who carried this to the greatest extent were Pierre d'Auvergne and the Monk of Montaudon, both of whom have been designated "*The Lash of the Troubadours*;" on a perusal of their effusions, however, we shall be more inclined to despise the lash than the victims. The proper subjects for satirical writings are the follies and foibles of mankind; and the satires of the Troubadours acquire additional value when, spurning all private feuds and selfish interests, they unsparingly brand and caricature the vices and explain the manners of the age. A perusal of these compositions will give us but little reason to regret the customs of what we so complaisantly term the "good old times." There we see branded, oppression of serfs, perjury to friends, innumerable cruelties, continual robberies, insatiable rapacity, and unbounded licentiousness—there we see exposed enormities at

* One of their most enthusiastic admirers, St. Palaye, in his *Histoire Litt. des Troub.* thus speaks of their amatory poems:—"Je l'avoue les fades lieux communs de galanterie, les répétitions fréquentes des mêmes expressions, le longueurs et le mauvais goût rendroient insupportable un recueil complet de leurs ouvrages."—*Discours Prelim.* tom. i, p. 64.

which we shudder, and crimes which "harrow up the soul;" and yet these are the manners and customs of the "good old times," which we still love to recal, and in recalling to regret.

Their didactic pieces are few in number, and much limited in their scope and tendency. Some few comprise maxims of universal morality; the greater part, however, contain instructions for the benefit of the different classes of society, to the candidates for knighthood, to the ladies, the poets, and the Jongleurs, detailing the path which each is to tread in order to attain pleasure, profit, or renown. Some of their moral sketches may be ranked among their happiest efforts; and we find that the tedium of continual advice is enlivened by occasional gaiety, and in some few instances rendered still more agreeable by the beauties of fiction.

Their pastorals are, as we have before mentioned, few in number, and in composition very inferior. And certainly, though few styles of poetry have attracted more writers than the pastoral, how few of them (even in modern times) deserve to be ranked higher than as mere imitators?* The pastoral descriptions and metaphors used by Theocritus, have been used as hereditary property by all succeeding poets; and the allusions and similies of the old Sicilian meet us again in the works of most of his poetical successors. If, then, even now, we fail in this species of composition, we cannot be surprised at its inferiority among the Provençals, whose style of living and manner of thinking were so totally averse to it.

A more enlarged account of their productions, as also a brief history of some of the more celebrated Troubadours, we will reserve for a future article.

CRITES.

* One of the best treatises on pastoral poetry is to be found in the *Rambler*, where, describing the pleasures arising from a country life, he says, "The sense of this universal pleasure has invited numbers without number to try their skill in pastoral performances, in which they have generally succeeded after the manner of other imitators, transmitting the same images in the same combination from one to another, till he that reads the title of a poem may guess at the whole series of the composition."

(To be continued).

THE MUSICIAN ABOUT TOWN.

THE triennial festivals for the three choirs of Worcester, Gloucester, and Hereford, have for some years past turned out to be little better than an expensive as well as troublesome office to those resident gentry who liberally engage to undertake the duties of stewards : for in striking the balance between the receipts and the expenditure it is almost invariably found that the stewards have a large sum to make up among them, in order to meet the deficiencies. This was the case after the Gloucester meeting, held in September last, although the only festival of the year. One of the principal reasons advanced for these defalcations (and every one acknowledges its plausibility) is, the ridiculously disproportioned sums that are given to the foreign artists who happen to be the favourites of the season at the Italian Opera, three of whom would swallow up the engagements of *two hundred* efficient chorus singers. The reputed sum paid to Grisi alone at Gloucester was equal to that received by one hundred of the chorus, coming from London, and who were to lodge and feed themselves for a week, at a season, too, when both those necessities of life are always at a premium. The presence of those eminent artists is, doubtless, a source of great attraction upon such an occasion, but it is questionable whether their influence is so powerful since the more intimate intercourse of the resident gentry with the metropolis ; who, be it remembered, can and do hear them at considerably greater advantage in their own arena—the Italian Opera House. They of the neighbourhood where the festival is held, to whom such a singer as Grisi would be the greatest novelty, are precluded from the gratification of hearing her on account of the high prices for admission to the performances. If the second-class seats were let upon lower terms, or if there were a third division for the audience at—say five shillings each ticket, it is scarcely to be believed that the second-class seats would be more deserted than they now are, while numbers of the townspeople and small tradesmen who, under the present system, will gratify themselves by one performance only, would then subscribe to the whole series. We know that there is a little aristocratic check which has hitherto prevented the stewards of these festivals from admitting “the lower orders,” and this feeling is, in every sense, an unworthy one. They are associated with their plebeian neighbours every Sunday that they hear service in the cathedral ; and we all know that they can waive this fastidiousness when, upon *other* occasions, the co-opera-

tion of the plebeian is indispensable. We plead for no indiscriminate mixing up of the classes in society; there must and will be Gibeonites in the camp. But he must be unobservant indeed who cannot perceive that a finer tone of civility has of late years pervaded the deportment of our "hewers of wood;" and we believe that as, in proportion to their mental culture, men more accurately estimate their own position in society, and are prepared to render justice to that of their superiors (for it is the brutal only who are mere levellers of all distinction), so we believe that, effectually to maintain that distinction, the "lower orders" should be courteously admitted to all public institutions, and above all to those great associations whose object and tendency are to refine the feelings and soften the character: and therefore (returning from this digression) we believe that the stewards of the three choirs will consult the interests of the charities, and their own true dignity, by erecting galleries and issuing tickets at low prices, for the accommodation of the humbler classes. The committee for the Worcester festival, which will take place next year, and the members of which, we understand, have already begun to make preparatory arrangements, will, we hope, take our suggestion into consideration.

The fullest audiences at the Gloucester festival were assembled on the performance of the "Messiah" and "St. Paul;" at the evening concerts the chief attractions were, as might be expected, the singing of Grisi, Ivanoff, and Lablache. Mad. Albertazzi's engagement was fortunately annulled, from her being unable to fulfil it, on the score of indisposition. The rupture of her contract with the Gloucester committee, as also subsequently with Dr. Camidge of York, at whose subscription concerts she had entered into a treaty, and was advertised to sing, created an undue emotion in the newspapers, with more proing and conning than fifty people in the country cared about for one moment. As regards Dr. Camidge, we should suppose that his disappointment at the absence of Mad. Albertazzi involved no pecuniary loss, while in the case of the Gloucester festival it must have been a positive saving to the stewards of £300., the reported sum which they had consented to pay the lady for her services. After the deplorable exhibition which Mad. Albertazzi made at Hereford the year before, it was a subject of surprise to every one that the Gloucester committee should have consented to treat with her upon any terms (for they did not want her); and most especially were the profession annoyed at the sum which Mad. Albertazzi was to have received, when the most eminent of the instrumentalists, upon the same occasion, had been per-

suaded to accept lower terms than they had ever taken at any previous festival. The fact is, had the band been equally unyielding with the foreign singers, the Gloucester festival for the present year must have dropped through altogether. The result of this conduct on the part of the band will be, that it will form a precedent for other festival committees to offer them char-work terms, in order that they may be enabled to meet the extravagant demands of the foreigners ; and in the event of the instrumentalists striking for their old wages, the committees will reserve a few good names to make a show in the bill, and fill up the orchestra with waifs and strays and academy boys, whose cue (and it is a laudable one) is, to consider remuneration a secondary object when barking for engagements.

The theatres have hitherto made but little progress in musical matters this season ; for Drury Lane (which is now essentially an English opera house), with its excellent company of singers, its musical conductor, and first-rate band, has, in sea phrase, made no head-way at all. A system of puffing that would turn the stomach of a rhinoceros ; the vulgar style of *dragging*—not bringing—pieces out ; and the snow-storms of orders nightly showered into the house, have plunged this once flourishing establishment into the very mire of contempt. The season opened with Mozart's *Don Giovanni*, in which Mr. Balfe was the hero, and he filled the part with much ability. Phillips's *Leporello* wanted bustle and humour ; qualities which *Giubilei*, with his Italian blood and associations, successfully infused into the character of Masetto. Miss Betts and Miss Poole were the *Donna Anna* and *Elvira*, and Mad. Albertazzi, whose accession to the company, for a few nights was announced in corpulent type, performed the part of *Zerlina*. This undue exaltation of the lady's name in the bills above the other characters in the opera, proved to be a detriment rather than a benefit to it. The manager did no more when he had engaged *Malibran* ; and the consequence was that exclusive attention was directed to Mad. Albertazzi, who, from the tameness of her performance, which was stagnant as a fish-pond, disappointed every one. Had she been set down for the part of *Elvira*, and Miss Romer (who has ten times her energy and vivacity) taken that of *Zerlina*, the cast would have been more complete. In the part of *Annette* in "*La Gazza Ladra*," Mad. Albertazzi was greatly successful. She has been educated in the modern Italian school of music, and, we suspect, is intimate with no other. Since the completion of her engagement, which occupied about a month, the company have been repeating their old stock pieces, the

“Maid of Artois,” “Gustavus,” “Fra Diavolo,” but with no effect upon the town. Braham, too, has made his appearance at Drury Lane, and, for his reputation, injudiciously. He never filled his own theatre, the St. James’s; and it is not easy to conceive what there can be in the atmosphere of a house more than twice its size to produce any change in public curiosity. There has been one new opera brought forward here, entitled, “Francis the First,” the music by Mr. E. Loder. As regards the piece itself, it may be said to be a revival of the old “Mysteries;” for Francis the First must have been a mystery to every body: to the writer, for he must have performed his task “by faith, and not by sight;” to Mr. E. Loder, who, it is said, composed the music without being admitted to the arcana of the plot and dialogue; and to the audience it proved an undoubted mystery, though not a reverend one. The consequence was, notwithstanding the turbulent and interested zeal of some present, the audience came away hardened heretics.

At Covent Garden but one original musical drama has hitherto been produced this season; if that can be called original in England when both the plot and music are of French extraction. It was entitled “Barbara:” the music, which is pretty, is by the younger Boieldieu. Contrary, however, to the expectation of the management, as well as the performers, the existence of Barbara extended to only a few nights. It should seem that, as regards the productions at this theatre, the public have demanded too high a standard of excellence; for we have witnessed the quick dismissal of pieces this season, which would assuredly, in any other metropolitan theatre, have reached the average longevity of all such as pretend only to while away an odd three quarters of an hour. If, however, Mr. Macready be subjected to these little disappointments (the troublesome accompaniments of possessing too good a character), he is a fair example of what the public *will* do for a man of real merit and energy, who also is determined to gain their favour; and he is an example, too, of the small portion of influence the newspaper press has with that public, when *they* are resolved to be pleased. The unjust treatment he received from the daily press last season was the constant remark of all who had witnessed his exertions and success in reproducing the finest works of the finest of all dramatists. The revivals, for instance, of the Coriolanus and the Macbeth, which for splendour and propriety were never even equalled, and the performances of which were repeated, perhaps, thirty times in the course of the season, were coldly recorded by some of the daily papers in a paragraph of about ten or twelve lines: whereas some

worthless gewgaws, produced elsewhere, that no puff (preliminary or immediate) could keep alive for a fortnight, were lauded and re-lauded through persevering columns of small type. Setting aside the injustice of all this, the reporters have not been "wise in their day and generation;" for they have distinctly shown to other caterers for the people's amusement, how much they must depend upon themselves, and how little upon puff paragraphs, for support. No flourish of trumpets, for example, was made, and none was required, to introduce "The Tempest, according to the text of Shakspeare." When the time came, the thing spoke for itself; and one benefit, if no other, will accrue from the excellent judgment and superb style in which it has been brought out, viz. that this divine play can never more be profaned by the gross, the monstrous alliance forced upon it by the ribaldry of Dryden and Davenant. No future revival of the Tempest must be contemplated in a relaxed spirit; and none surely can well surpass the present one for carrying out the sweet imagination of its author. One omission only in the original arrangement of the play is to be regretted, and that is, the admirable opening scene of the storm *on board the king's ship*. Brisk and stirring as this is, however, in the text, it is, perhaps, questionable whether the machinist could have succeeded in presenting to the audience an illusion so complete as to have warranted the attempt. Even in the most perfect of theatrical machinery the senses are never wholly hoodwinked; and so unreasonable are the public in matters of this nature that the greater the attempt, the less appears to be their consideration for a failure in it. The musical department of the Tempest was filled in a more than creditable style—it was excellent. Mr. T. Cooke, to whom the praise is due of selecting the inter-act music, evinces both taste and judgment in choosing those charming movements from Corelli, who was contemporary with Purcell; and the manner in which he arranged them for the full orchestra has received general commendation from the musical professor and amateur. So complete, indeed, has been the satisfaction expressed and felt by the musical public with this portion of the entertainment—the simply beautiful harmonies of the old Italian composer, accompanied with the exquisite melodies of the illustrious Henry Purcell—that we happen to know the fact of one of our most eminent professors having three times paid his admission to the boxes for the pure enjoyment of the music. The memory of Purcell's music never can wholly pass away, although the manner of performing it has unfortunately become traditional: but

the melodies themselves must ever remain fresh and green with all who appreciate a natural and forcibly direct expression ; for all his phrases, like that which has been defined to be the purest style of literary composition, viz. "proper words in proper places," seem to be instinctively the very—indeed, the only—media through which the sentiments of the poet can be conveyed in musical sounds. With a genius which, upon numerous occasions, prompted him to anticipate more than a century of improvement in counterpoint, Purcell was imbued with a poetical temperament which at once dictated to him the full force of the meaning which he was to convey in melodious phraseology. Not to instance his well-known secular compositions, examples of eminent felicity in forcible and natural expression may be found scattered through his anthems and other sacred works. To the professor and amateur not already acquainted with them, we earnestly recommend the two anthems, "Who hath believed our report?" and "My beloved spake," the latter from the Solomon's Song ; compositions totally opposite in character, and yet vieing with each other in profound learning and an anticipation of the modern resources in counterpoint, together with so easy and sweet a naturalness of character that it appears as if no different form of expressing the sentiments could be rationally contemplated. The great charm in Purcell's music is, that not only is it no reflection of any other school, but that its profoundly scientific construction never clouds or obstructs the clear beauty and progress of his melody. He is a difficult author for the modern sciolist, because he is all expression, and never sacrifices the sentiment of a passage to an unmeaning roulade, or piece of vocal execution. His songs are the very antipodes of a modern singing-master's studio. To conclude, then, our notice of the performance of the *Tempest* at Covent Garden Theatre, the musical department would do credit to any establishment. The principals (Miss Horton more especially, as Ariel) sang the songs with characteristic simplicity ; and the chorusses were so well drilled that even the boasted German company could scarcely have surpassed them.

The *Tempest* has been followed by the production of Knowles's "William Tell," with a selection from the best chorusses, and concerted pieces from Rossini's opera ; and the entire opera, under its original title of "Guillaume Tell," was brought out at Drury Lane on the same evening (the 3rd instant). The manager of the latter theatre, with his usual disregard of accuracy, when it suits his purpose, publicly announced that this was the first time the mu-

sic of this opera would be heard in England: the fact being that, only a few years ago, a very considerable portion, and all the finest of the movements, were performed in the same theatre in an opera entitled "Hofer." So curtailed, with Miss Stephens, Mad. Vestris, Sinclair, and Phillips, as the principals, it did not then remunerate the manager: and now, we apprehend, the chance is not more favourable for the treasury, although it has been got up with great care and pains, and that the principals, Misses Romer, Betts, and Poole, Messrs. Braham, Allen, and Giubilei, exerted themselves to the best of their abilities. The cause of the public lukewarmness appears to be that, fine as the music is (for it is avowedly Rossini's master-piece as classical composition), the audience become wearied with its length and disgusted with the libretto: the lessee has, therefore, acted wisely in retreating to his citadel of wild beasts. They have been his preservers this season; Van Amburgh is, therefore, re-engaged. The chorusses in the *Tell* at both houses were a credit to each establishment; the general opinion, however, is, that at Covent Garden there was not only greater vocal strength, but more precision, with attention to light and shade in the performance: and indeed we have rarely heard a finer piece of dramatic music than in the celebrated conjuration chorus upon the assembling of the patriots. There were more than two hundred people on the stage. Mr. Land is entitled to high commendation for the zeal and assiduity he displays in his department of chorus-master. What the operatic company most needs at this house is, a tenor singer. The ladies Rainforth, Horton, Serle, are equal to all that may be required of them, and Leffler is a good substitute for Phillips, and a better actor: Manvers, with practice and care, will become essentially useful to the establishment; but Mr. Frazer is positively injurious to any composition that may be entrusted to him. His manner of singing—for style he has none—is vulgar, and the incorrectness of his intonation formidable. Nothing could possibly exceed the horror of his concerted singing in the opera of *Barbara*; and indeed it was the general opinion that the manifestation of disapproval against the piece might principally be traced to the performance of the person so preposterously engaged to fill the situation of principal tenor at the principal theatre in the country.

The Sacred Harmonic Society gave their first public concert for the present season on the 14th of November, when the spacious area of Exeter Hall was crammed to an overflow. The audience must have comprised at least two thousand persons. Very many

musicians and amateurs were attracted by the novelty of hearing the entire oratorio of "Samson," the first time of its being so performed for, we believe, more than fifty years. All our readers even moderately conversant with musical literature are aware that the plot of Handel's "Samson" comprises the same portion of event in the blind hero's career as that selected by Milton for his magnificent tragedy, viz. the course of action subsequent to the treachery of Dalila, concluding with the destruction of the temple and all the assembled Philistine lords; also that a large portion of the words of the oratorio were selected from the same drama and other poems of Milton, by Dr. Morell, of Chiswick, who also supplied original lines of his own, to render it apt for musical representation. It has been said that Handel considered this work, and which he composed in 1742, the year after the Messiah, to be so nearly equal in merit to the latter production, that he could not make up his mind which should take precedence of the other. With all the diffidence which should attend the slightest dissent from such an authority, we are constrained to confess that the above opinion (if Handel ever did pronounce it) is but another instance of the proverbial incompetence of authors to decide upon the comparative excellence of their own works; a decision not unfrequently the consequence of the exertion, more or less, which the production has cost them. In one feature only do we feel that the Samson is a work of higher classical beauty than the Messiah, and that is in its recitatives, which may, perhaps, be ranked as the very triumph of Handel's power in this branch of composition, many of them displaying matchless energy and strength of character with propriety of expression: and yet we nevertheless cannot conceal the fact from ourselves that we could have been content with a less abundance and continuity of the recitatives—in short, we became wearied with them. This large proportion of dialogue in recitativo imparts a character of monotony to the work, from which the scattered airs and concerted movements do not altogether (at least to our feelings) relieve it. If, however, we turn to the other features of the two oratorios, the pre-eminence of the Messiah becomes distinct indeed. The airs and duets in the Samson distinguished by their merit, are to be quickly enumerated; whereas several of a lower grade, we dare to say, are not merely uninteresting, but positively tedious. Such a judgment could not be awarded even to four out of the numerous perfect solos which shed their lustre over the Messiah. And when we proceed to compare the chorusses in the two oratorios, the one last named advances still

higher claims upon our admiration and consequent preference. Some of those in the *Samson*, and which it is not necessary to enumerate, are doubtless perfect of their kind ; while others are avowedly commonplace, if not meagre. Which of the chorusses in the *Messiah* is amenable to this detraction ? In short, it is incredible that Handel should have hesitated between the two works ; notwithstanding which, it is our belief that the gems in the *Samson* have never been surpassed, even by the composer himself.

The solo singers upon the present occasion were Miss Birch, Miss Wyndham, Messrs. Bennett, King, J. O. Atkins, and Phillips. The first young lady is entitled to distinguished approbation for the correct and uniformly careful manner in which she sang the airs allotted to the part of Dalila : and this is a feature in Miss Birch's professional conduct which must always secure to her the partiality of her audience. She at all events thinks it worth while to study her music before she goes into an orchestra ; and, consequently, she "hath her reward." For Miss Wyndham we have felt a strong interest ever since we first heard her in public ; because we believe that she possesses great capabilities, without having had a fair chance to give them free scope and action. Her voice is a rich mezzo soprano, full, and pretty equal through all its compass. There is a cordial expression in its tone which at times brings a remembrance of Malibran. Miss Wyndham however, has been educated solely in the modern Italian school of music, and not well even in that school ; and we are justified in concluding that she is not familiar with the style of Handel, seeing that she does not sing his music after any rule, traditionary or rational. We can make allowance for want of due energy in her delivering that fine recitative, "O, change beyond report !" because she was in all respects upon new ground : she therefore appeared to be feeling her way ; and we have little doubt that this was literally the case ; hence the impression upon her audience was, that she would come to a stand, for she dragged laboriously. The same defect appeared in her taking that serenely solemn and desponding air, "Return, O God of Hosts," which, nevertheless, she sang with a pathos and feeling of her subject that induce us to desire earnestly of her to procure a twelve-month's first-rate instruction and severe study in Italy ; for we have at present no English singer having her compass of voice, with its quality and capability of improvement.

Mr. Bennett sang the whole of the music allotted to *Samson* with exceeding care and good judgment. We have no native singer who

enunciates his words with more distinctness than he ; indeed, a stranger to the oratorio might have followed him without the assistance of the programme. If for no other accomplishment requisite to complete a singer, Mr. Bennett may be listened to with advantage by most of our native artists, for his distinct declamation.

Mr. Phillips was what he always is in music of this school, sensible, clear, and energetic. His delivery of the giant Philistine's opening recitative, "I come not, Samson, to condole thy chance," was a piece of masterly effect in singing.

Of Mr. Atkins the less said—justly, the better ; for he was constantly out of time and tune, and occasionally out of his depth. Incompetence with assiduity are entitled to forbearance ; but ignorance with self-complacency, who can bear ?

The choruses, upon the whole, went tolerably. "Then round about the starry throne ;" "Fix'd in his everlasting seat ;" "To dust his glory" (which was beautifully expressed), and the finale, were all excellent ; and the chorus of virgins, in dialogue with Dalila, was one of the most perfect specimens of unisonous singing from a large number of voices we ever heard.

The oratorio of "Solomon," with its half dozen magnificent double choruses, was performed on the 5th instant. The whole of the music for the principal character was written by Handel for a soprano voice, and scarcely with propriety : it was, however, even less judicious in the directors of the performance in the present instance to divide the airs and recitatives between a mezzo soprano and a baritone voice. It was preposterous to hear Miss Birch (Miss Wyndham was engaged to take the air) singing, "What though I trace ;" and, immediately after, Phillips delivering the recitative "And see, my queen." The solo singers were Misses Birch, Wyndham, and Woodyatt ; Messrs. Hobbs, Alfred Novello, and Phillips.

The directors of the Royal Academy having lately come to the resolution of appropriating one day in the week to the practice of classical music with the full orchestra, we had the pleasure of being admitted to a rehearsal of Mendelssohn's psalm, "As pants the hart ;" the first verse of which is one of the most charming choral movements he has hitherto produced. We may take a future opportunity of giving a detailed account of the whole composition when it is performed at the first Academy concert, which will not take place till this article has gone to press. Suffice it to say, for the present, that we were much gratified with the steady performance

of the pupils, and equally so with the solo singing of a young lady, whom we understood to be under the tuition of Mr. James Elliott, Miss Romer's instructor, a man, in all respects, competent to the task of forming an accomplished singer, being not merely a thorough practician in his art, but, moreover, possessing a natural and cultivated taste in the sister arts of poetry and painting—valuable accessories, if not positive necessities, to form a perfect singer; for no one can rise into the highest station of any branch of the fine arts, who possesses not a close sympathy with the spirit of beauty under all its phases and appliances.

SKETCHES OF EUROPEAN ORNITHOLOGY.

GOULD'S "BIRDS OF EUROPE."

SEVENTEENTH PART.

THESE Sketches, first projected and actually "commenced by ourselves,"* events of a private nature have, for the last two years, prevented us from continuing. For the Analysis of the first four Parts only of Mr. Gould's incomparable work, are we, consequently, responsible.

Deeply sensible of the great superiority of the articles which have subsequently appeared, under this *borrowed* title, in the *Analyst* and *Naturalist*, we should deem it an act of flagrant and indelible dishonour to arrogate to ourselves the merit of other writers; and hence has arisen the necessity of the present explanation. Still, having

* This assertion will naturally excite surprize in those who have had the good fortune to peruse an article entitled "Sketches of European Ornithology" published by MR. NEVILLE WOOD in a late number of the *Naturalist*. They, however, who feel at all sceptical on the subject, may have their doubts removed by turning to pages 99 and 280 of the third volume of the *Analyst*. If this be not satisfactory, we refer them to page 196 of the *Ornithologist's Text-book*, a work professedly emanating from Mr. Neville Wood himself. *FALSA vincere veris* is our family-motto; a motto, unfortunately, but too applicable on the present occasion.—P.

been called upon to consummate a work which, however feebly commenced, has been so magnanimously prosecuted, we resume our labours in all the humility of spirit inspired by a sense of unspeakable inferiority to that man who, in the hour of need, so kindly and considerately stepped forward to relieve us from our burden. Favours, emanating from a noble mind, are rendered peculiarly estimable by the unobtrusive grace and delicacy with which they have been conferred.

PLATE I. exhibits a not very correct, rather clumsily drawn, yet well-coloured figure of the Woodcock,—*Scolopax rusticola*,—le Bécasse ordinaire, *Fr.*,—Beccaccio, *It.*,—Wald Schneppe, *G.*,—Hout-snep, *Dutch.* The migrations of this well-known bird extend from the Arctic circle to Asia. Eggs: four, yellowish-white, blotched with pale chesnut-brown. From the peculiarity of form, manners, and habits which characterize the Woodcock, Mr. Gould proposes that, with one or two other species, it should constitute a new genus under the title of *Rusticola*, already employed by Vieillot. It figures in the Systematic Arrangement of our former Derbyshire Correspondent, under the name of *R. migratoria*, or Woodoc! A more unobjectionable designation than *Rusticola* might readily be devised.

PLATE II. Red-headed Pochard,—*Fuligula*—olim *Anas*—*ferina*,—Canard Milouin, *Fr.*,—Anatra Penelope, *It.*,—die Taffel-Ente, *G.* Figures of the male and female, exquisitely drawn and coloured. The London markets are supplied with great quantities of the Pochard: it is there known by the name of Dun-bird. Food: aquatic plants and *Mollusca*. Eggs: twelve in number and white. Breeds in marshes.

PLATE III. Bartram's Sandpiper,—*Totanus Bartramia*,—Chevalier à longue queue, *Fr.*,—der Langgeschwanzte Strandläufer, *G.* It is the *Tringa Bartramia*, of the American Ornithologist, Wilson; by whom it was first discovered and described,—*Tringa longicauda*, of the German Bechstein. A native of North America; two or three specimens only have been taken in Europe. Food and propagation unknown. The figure of the adult male before us is very nicely drawn and coloured. How obviously preferable is the specific designation, *longicauda*, expressing, as it does, a marked external character of the bird, to that derived from the name of an ornithologist alike unknown, and uncared-for, by us!

PLATE IV. Hedge-Accentor,—*Accentor modularis*,—Accentor mouchet, *Fr.*,—Schiefer-breustiger Sanger, *G.*,—de Winter Zanger, *D.* This elegant little bird, the Hedge Sparrow,—*Motacilla*,—*Syl-*

via modularis, le Mouchet, Traine buisson, ou Fauvette d'Hiver, of the older ornithologists,—is here very charmingly delineated in two figures, male and female. The only defect is that the figures are much too large. All the other species of *Accentor*, a genus instituted by Cuvier, are, with one exception, peculiar to Europe. Our favourite little songster breeds in March. The bright-blue eggs are familiar to every school-boy. Even this passing aversion to them still serves to call up, with us, the splendid yet mournful apparition of departed days.

PLATE V. Capercaillie or Cock of the Woods,—*Tetrao urogallus*,—Tétrao Auerhan, *Fr.*,—Gallo di Monte d'Urogallo, *It.*,—Auerwaldhuhn, *G.* This noble bird, the largest of the Grouse-Family, formerly inhabited the forests of North Britain; but it has long been extinct. It is still common in the pine-woods of the mountainous districts of Europe, and more especially in those of Sweden and Norway, from whence the London markets are principally supplied with it. Many laudable attempts have, of late, been made to re-introduce into congenial situations of our islands, and again naturalize among us, this "Prince of game-birds." With the issue of these experiments we are, at present, unacquainted. *T. urogallus* and *Tetrix* differ essentially, in their habits and character, from the other species of the Grouse-Family. They are more decidedly arboreal; and the horny papillæ, with which their feet are furnished, enable them to grasp securely the slippery branches of the pine and other Alpine trees. The male is polygamous; and associates with the female only during the breeding season. The latter lays from eight to sixteen eggs, of a yellowish-white colour spotted with a darker yellow, in a nest constructed amidst brakes and underwood; and rears her young in seclusion. The trachea of the *male* bird forms a convolution at about three-fourths of its length, between the branches of the fork-bone. The curvature of the tube, after rising nearly an inch and a half, descends afresh, by the left side of the gizzard, over the cervical muscles into the lungs. Two muscles, one line broad, attached on each side of the larynx, follow laterally the direction of the tube, to which they adhere by very delicate fibres; pass over the gizzard, and unite their fibres on the crest of the sternum. This peculiarity of structure of the trachea, and the two ribband-like muscles, do not exist in the *female* bird. The figures, presented by Mr. Gould, although finely executed, are not so strikingly characteristic of the originals as in many of the preceding plates.

PLATE VI. presents figures, male and female, of the Buff-breasted

Sandpiper, *Tringa rufescens*,—le Tringa roussatre, *Fr.*,—excellent alike, in form and colouring. This elegant bird, discovered, in Louisiana, by Vieillot, has been observed only thrice within the limits of Europe,—twice in this country and once in France; and was first described as a British species by Mr. Yarrell in the 16th volume of the *Linnæan Transactions*. Of its habits and nidification, nothing is, at present, known.

PLATE VII. A noble figure of the Short-toed Eagle,—*Circæëtus brachydactylus*,—l'Aigle jean de blanc, *Fr.*,—Falco terzo d'Aquila, *It.*,—Kurzzehiger Adler, *G.* This Eagle,—*F. gallicus* of Gmelin, and *leucopsis* of Bechstein,—*Aquila brachydactyla* and — *leucamphoma*, of other German writers,—has, as the specific designation indicates, *short toes*, the outer two united, at their base, by a web; the lateral and hind-toes nearly equal; nails short, and strongly curved. It has the wings of the Eagles and Buzzards, with the reticulated tarsi of the Ospreys; holds an intermediate place, in a philosophical System of Ornithology, between the genera *Haliæëtus*, *Pandion*, and *Buteo*: and is admirably described by Temminck, in his celebrated *Manuel*, p. 46. It inhabits the great pine-forests of the eastern portions of North Europe: occurs, occasionally, in Germany and Switzerland; rarely in France; never in Holland or the British islands. Its favourite food is lizards and serpents: in the absence of these, birds and poultry. In a nest built on the loftiest trees, the female deposits two or three eggs, of a lustrous-grey colour, without spots. The Plate represents a male bird in the adolescent state; when the flanks and thighs are transversely barred with brown.

PLATE VIII. Figures of the male and female Bimaculated Teal, — *Querquedula*—olim *Anas*—*glocitans*—admirably executed. This beautiful species, the largest, hitherto known, of the Teal genus, is described, by Pallas, as a native of Northern Siberia. Three instances only of its capture have occurred in Britain. It has been correctly figured by Pennant in his *British Zoology*. Of its habits, nidification, and anatomy of the trachea, Ornithology, at present, possesses no record. The English specific designation* of the bird is derived from *two* large brown *spots*, of an oblong figure, on the

* On what ground, has our late correspondent, S. D. W., while he somewhat capriciously substitutes *Crecca* as a generic appellation of the Teal, for *Querquedula*, neglected to adopt the precise and corresponding Latin term, *bimaculata*, for the species, in preference to the vague and objectionable *glocitans*?—P.

face and neck of the male. Mr. Gould believes that these markings vary in depth of colour, at different seasons.

PLATE IX. The Red-legged Partridge,—*Perdix rubra*,—le Perdrix rouge, *Fr.*,—Pernice commune, *It.*,—das rothe Feldhuhn, *G.* This beautiful species, with four others, two of which are extra-European, differ so widely, in the possession of a spur and the habit of perching upon trees, from our common Partridge, that we, even we, are disposed to approve of their removal to a distinct genus. To the genus thus constituted, the term *Rufipes* has been applied. A more characteristic designation, derived from the presence of the spur, might, peradventure, be concocted. The subject of the present plate, in our opinion, too large and rather harshly coloured, has long been naturalized in England under the name of the *Guernsey Partridge*. It is a native of the European continent, and the Channel-islands. In an autumnal visit lately paid, by us, to Guernsey,* we, however, saw nothing of this bird; and all our inquiries led to the inference that, if not utterly extinct, it must have become very rare, in that favoured isle. It is the *Rufipes picta*,—Guernsey Red-foot,—of modern Ornithologists.

PLATE X. Black-and-White Kingfisher,—*Alcedo rudis* (why not *melaleuca*?). A native of Africa and Asia; but occasionally visiting the islands of the Grecian Archipelago. Feeds on fishes, and lays white eggs. Resembles, in general form and structure, our British species. Figures of male and female very finely delineated.

PLATE XI. Common Flamingo,—*Phœnicopterus ruber*,—le Flammant rouge, *Fr.*,—der rothe Flamingo, *G.* A strong doubt is expressed, by Temminck, as to the identity of the old-world and American species of this extraordinary bird. Should they prove, on farther examination, to be distinct, he proposes to apply to the former, the term, *Ph. antiquorum*, and retain, for the latter, its present specific designation, *ruber*.

These birds live on the sea-coast; and feed upon testaceous *Mollusca*, fish-spawn, and insects, for the capture of which, the possession of a curved beak and long and flexible neck admirably fits them. They congregate in large numbers, and breed in society. They construct, in marshes, an elevated and pyramidal nest of earth, hollowed

* We were much surprized at the paucity of birds observed by us, during a fortnight's sojourn in the beautiful island of Guernsey. The Osprey and the Kite were the only birds of prey, which presented themselves to our notice there: and even of the Water-birds, the individuals and the species were far less numerous than we had expected to find.—P.

out at the summit; on which they place themselves astride to perform the process of incubation; prevented, by the length of their legs, from sitting on the nest, in the ordinary fashion. The eggs are two in number, pure-white, and of an oblong figure.

There are several defects in the principal figure of the Flamingo, as delineated by Mr. Gould. The leg on which it stands is much too thick; the neck too short; and the bill certainly less curved than in the cabinet-specimens with which our eye is familiar. The structure of the latter organ is more correctly figured by the American Wilson, and even by Rennie, in his *Architecture of Birds*, than by Gould in this elaborate and finely-coloured engraving.

PLATE XII. Great Snipe,—*Scolopax major*,—Le Grande ou Double Bécassine, *Fr.*,—Beccacino maggiore, *It.*,—Mittelschnepfe, *G.* A bold and striking figure of the male bird, somewhat harshly coloured. The impropriety of the application of terms, indicative of size, for the specific designation of animals, or plants, is rendered very obvious in the present instance: for the Great Snipe, although the largest of the European, is actually surpassed in size, by two Asiatic, and one American species. The bird, however, is of solitary habits; and, consequently, may be distinguished by the epithet, *solitaria*, until a better specific designation can be devised. All terms, derived from the habits of animals, are only admissible into philosophical Zoology in the absence of others founded on some striking peculiarity of external structure or colouring.

PLATE XIII. The Solan Gannet,—*Sula bassana*,—le Fou blanc ou de Bassan, *Fr.*,—der Bassanische Pelikan, *G.*,—Jan van Gent, *D.* Than the two figures of the adult and young bird, here represented, nothing, more strikingly correct or beautiful, has ever been conceived or executed. The rocky and precipitous coasts of Scotland and the adjacent isles, as that of Ailsa, and the Bass rock, are selected as the principal habitation, and the breeding places, of this powerful bird,—*S. alba*, of Meyer,—*Pelicanus bassanus*, and Solan Goose of the older Ornithologists. Till the end of the fourth year, when the adult state is attained, the Gannet exhibits great variations of plumage. The female lays one white egg. Fishes taken by the act of plunging, constitute its food.

PLATE XIV. Of the Broad-billed Tringa,—*Tr. platyrhyncha*,—le Bécasseau platyrhinque, *Fr.*,—*Numenius pygmaeus*, and Pigmy Curlew, of Latham,—one exquisite figure is here given. Temminck describes it as inhabiting the marshes of North Europe and America. It passes, annually, southward along the eastern rivers of the Eu-

ropean continent ; and is common on the shores of the Swiss lakes, particularly in spring. Food : insects and worms. History and habits unknown.

PLATE XV. The Calandra Lark,—*Alauda Calandra*,—l'Alouette Calandre, *Fr.*,—Kalander Lerche, *G.*,—forms, in figures of an adult and young bird, the subject of this plate. It inhabits North Africa and the southern regions of Europe. It closely resembles its congener, *A. Tartarica*, in size and figure ; and our own favourite, *A. arvensis*, in habits. The nest, constructed, among grass, contains four or five eggs, of a clear-purple colour, marked with large ash-grey spots, and dark-brown specks. Food : insects, worms, and seeds.

PLATE XVI. A bold and masterly figure of the Brent Goose,—*Anser brenta*,—l'Oie cravant, *Fr.*,—Anatra colombaccio, *It.*,—Ringel-Gans, *G.*,—Rotgans, *D.* Much confusion has been introduced into ornithological writings, by an error of Linnæus in describing the true Bernicle as the male of the White-fronted Goose, *A. erythropus* ; and regarding, as synonymous, *A. brenta* and *bernicla*, of the older naturalists. This error has, at length, been rectified, by Dr. Fleming, in his valuable *History of British Animals* ; and the White-fronted (*Anas albifrons*, of Gmelin and Latham) Bernicle, and Brent Goose, are there properly arranged under the respective titles of *Anser erythropus*, *bernicla*, and *brenta*.

The Brent or Brand Goose is the smallest of the European species of *Anser*. It breeds in the arctic circle, during summer ; the female laying from ten to twelve white eggs in a nest constructed of vegetable materials ; and seeks, in autumn, the more temperate regions of Europe. During winter it inhabits, in large flocks, the bays and shores of our southern and eastern coasts ; and is widely spread along the northern limits of the neighbouring continent. The trachea of the male bird becomes suddenly enlarged a little below the glottis. Resuming its ordinary diameter, the tube swells into a second dilatation about the region of the furculum. At that point, the rings suddenly contract, and form a very narrow cartilaginous tube ; from whence issue the funnel-shaped bronchi, composed of solid and entire rings.

PLATE XVII. Temminck's Tringa,—*Tr. Temminckii*,—le Bécasseau Temmia, *Fr.*,—der Temminckshe Strandläufer, *G.* The smallest of the species of *Tringa* ; so named, by Leisler, in honour of his friend, the celebrated Dutch ornithologist. It has frequently been confounded with *Tringa minuta* ; but differs from its conge-

ner, in inferiority of size ; in the possession of shorter tarsi, of an olive-green colour ; in the absence of the red colouring of the upper surface ; and the preference which it evinces for inland creeks and muddy shores, instead of the shingly beach which constitutes the favourite resort of the latter. Its food consists of insects, worms, and *Mollusca* : and, although no authentic record of the fact has yet been obtained, Mr. Gould thinks it probable, from the frequent occurrence of the bird, in an immature state, in this country, that, like the Dunlin and others of the genus, it breeds in some of our more secluded and extensive marshes. The plate represents figures of the young and adult bird, executed with great taste, fidelity, and spirit.

PLATE XVIII. The Little Cormorant,—*Carbo pygmaeus*,—le Cormoran pygmée, *Fr.*,—is here very strikingly delineated. It is *Pelecanus pygmaeus*, of Pallas ; the Dwarf Shag, of Latham ; yet, by no means, as its specific designation would seem to imply, the smallest of its genus. It inhabits the eastern parts of Europe ; is very numerous in Asiatic Russia, and probably in Turkey. Food, and nidification, unknown.

PLATE XIX. Richard's Pipit,—*Anthus Richardi*,—le Pipit Richard, *Fr.*,—is here very cleverly represented ; but, in size, certainly larger than natural. In the general outline of the body, in the elongated figure of the posterior claw, and in the habit of frequently raising and depressing the tail, a striking affinity exists between the species of the genera *Anthus* and *Motacilla*, especially those belonging to that section of the latter to which Cuvier has applied the sub-generic designation, *Budytes*. The subject of the present plate is of somewhat rare occurrence in Europe. Mr. Gould believes that the northern and western regions of Africa are its native habitation. Food, and nidification, unknown.

PLATE XX. The present Part concludes with the exhibition of two figures, nobly drawn, and most delicately coloured, of the Glaucous Gull,—*Larus glaucus*,—le Goëland Burgermeister, *Fr.*,—Weischwingige Meve, die grosse Seemeve oder der Burgermeister, *G.*,—in the adult summer and the immature plumage. A native of the Arctic regions, it breeds on precipitous rocks. Of its eggs, the most contradictory descriptions have been published : some writers, as Gould, stating them to be of a pale purplish-grey colour, with spots of umber-brown ; others, as Temminck, believing them, from the report of travellers, to be greenish, and marked with six or eight black spots. The species is a common visitant of the British and other European coasts ; and feeds voraciously on carrion, the car-

cases and even excrements of the *Cetacea*, fishes, and the smaller marine birds.

EIGHTEENTH PART.

PLATE I. Presents two charming figures, male and female, of the Martin or Eave-Swallow,—*Hirundo urbica*—l'Hirondelle de Fenêtre, *Fr.*,—Rondine commune, *It.*,—die Hausschwalbe, *G.*,—Boeren Zwaluw, *D.* The only defect which we can discover, is a somewhat unnatural elongation of the head of the male bird. That of the female, as it peers from "the canny nest," is admirably true to nature.

PLATE II. Equally accurate and pleasing representations of the Chimney-Swallow,—*Hirundo rustica*,—l'Hirondelle de Cheminée, ou domestique, *Fr.*,—Rondine domestica, *It.*,—die Rauch-Schwalbe, *G.*,—Huis Zwaluw, *D.*,—in the adult and immature states. Few of our readers are probably aware that a common plant, the greater Celandine,—Zwaluw-kruid (Swallow-wort) of the Dutch,—derives its Greek and generic Latin designation $\chi\epsilon\lambda\iota\delta\acute{o}\nu\iota\omicron\nu\varsigma$, and *Chelidonium*, from the circumstance of its flowering about the joyous period of the coming of the *Swallow*,—ἡ $\chi\epsilon\lambda\iota\delta\acute{o}\nu\iota\omicron\nu\varsigma$.

PLATE III. The European Goatsucker,—*Caprimulgus Europæus*,—l'Engoulevent ordinaire, *Fr.*,—Suchia Capare, ô Nottola, *It.*,—Tagschlafer, *G.*,—Geiten-Melker, *D.* Than this curious and ill-fated bird, none has ever been more unjustly calumniated; none more unhappy in either its generic or trivial designations. For neither has it ever been convicted, on clear evidence, of defrauding the youngsters of the goat-family of their destined aliment; nor is it, as the specific name would naturally imply, the only European species of this foully-belied genus. With a view of rectifying the errors to which we have just adverted, divers scribes of high ornithological celebrity, have manfully exerted their well-known onomato-poietic talent: and the imposing terms, *Nyctichelidon Europæus*, and *Vociferator melolontha*, have been the felicitous results of the profound cogitations of a Rennie and a Wood. Now, if pigmies, such as we, may presume to offer an opinion on such grave and weighty matters, or question the dicta of the mighty in literature and science, we shall, at once, boldly affirm that neither of these appellations is altogether unobjectionable. The term, *Nyctichelidon*, or Night-swallow, is certainly far preferable, as a generic designation, to its obstreperous rival; but, for the reasons already assigned, the adjective, *Europæus* must be summarily discarded: and, on the other hand, the applicability of

the epithet, *melolontha* to a bird which preys as freely on lepidopterous and hymenopterous insects as on the cock-chafer, it would require an apparatus of cerebral organs, far more finely constituted and fully developed than those in our possession, to discover. From the peculiarities of its external structure, mode of flight and capture of the animals which constitute its food, and its habits of crepuscular and nocturnal excursion in search of prey, the Night-jar evidently occupies an intermediate situation between the nocturnal Division of the Owl-, and the Swallow-Family. A due consideration of these circumstances will probably lead to the adoption of a more appropriate specific name than those we have so daringly denounced. Till then, the terms, *Nyctichelidon vulgaris*, may be conveniently employed. The eggs, two in number, of an oblong figure, and white colour regularly marbled with brown and ash-grey spots, are deposited, without nest, at the foot, or, sometimes, in the holes, of trees. The close resemblance which exists between the plumage of the Night-Swallow, and young cuckoo, has been the source of divers erroneous statements respecting the habits of the latter bird. For an account of these, we refer the reader to page 121, of Rennie's edition of the *Ornithological Dictionary*, of Montagu.

PLATE IV. A delightful representation of Tengmalm's Owl,—*Noctua*—olim *Strix*—*Tengmalmi* vel *funerea*—Chouette Tengmalm, Fr.,—Rauhfüssiger Kauz, G. This interesting little Night-owl, only of late years recognized as a British species, may be distinguished from *N. passerina*, with which it has frequently been confounded, by the more elongated figure of the body, the greater proportionate length of the wings and tail, and shortness of the *tarsi*, which, with the toes, are *thickly feathered*. It is widely distributed through the northern and eastern regions of the European continent, and the wooded districts of North America. A good description, and neat but not very characteristic figure of the bird, are given in the second volume of *Fauna Boreali-Americana*. Few specimens of it have hitherto been observed in Britain. As the two nearly allied species, which we have just been contrasting, are at once distinguishable by the *presence*, or *absence*, of *down* on the *tarsi and toes*, we trust that all "good and true" Ornithologists will, henceforth, agree to respectively designate them by the characteristic terms of *feather-foot*, and *bare-foot*, Night-Owl, *Noctua dasypa*, and *Noctua nudipes*.

PLATE V. The Common Tern—or Sea-Swallow,—*Sterna hirundo*,—l'Hirondelle-de-Mer Pierre Garin, Fr.,—Gemeine oder Rothfüssige Meerschwalbe, G.,—Zee-Zwaluw, D. Two figures of the

adult in the summer- and winter-plumage; very correctly and delicately executed.

PLATE VI. Of Marmora's Warbler,—*Curruca sarda*,—le Bec-fin Sarde, *Fr.*,—a male and female are here exquisitely delineated. Closely allied, in plumage and the naked circle which surrounds the eye, to *C.*—*Sylvia*—*melanocephala*, it may be distinguished by the more weak and slender structure of the bill; by the mere edging with white, of the exterior tail-feathers,—whereas, in *C. melanocephala*, all the exterior barb, and the extremity of the two first feathers are white;—and by the less deep and decided black colouring of the head. This species, a native of Sardinia, was first described by the Chevalier Marmora, in August, 1819, in the *Annals of the Academy of Turin*. It inhabits wild and uncultivated districts; and is exclusively insectivorous. Nidification unknown.

PLATE VII. A splendid figure of the Short-eared Owl,—*Otus*—olim *Strix*—*brachyotos*,—Hibou brachiote, *Fr.*,—Kurzöhrige Ohreule, *G.* The synonyms of this “creature of many names,” are perplexingly numerous. It is the *Strix accipitrina*, *arctica*, *brachyura*, *palustris*, *stridula*, *tripennis*, and *ulula*, of sundry writers; *Ulula brachyotos*, of MacGillivray,*—by whom a most minute and accurate description has been given, of its structure, characters, and habits;—and *Asio ulula*, of Mr. Neville Wood. We learn, on the authority of Sir W. Jardine,† that this species breeds in Scotland; that the nest is formed on the ground among heath, and its bottom scraped until the fresh earth appears. On this the eggs, five in number, are deposited, without lining or cover of any description.

PLATE VIII. The Cetti Warbler,—le Bec-fin bouscarle, ou Cetti, *Fr.* A native of Sardinia and Italy; but never yet captured, as Temminck supposes, in England. Non-migratory and insectivorous. Nearly allied, in figure and action, to the true Wrens; in other characters, to the Reedlings: and hence provisionally ranged, by Mr. Gould, among the *Salicariæ*. Two exquisite figures of the adult bird.

PLATE IX. Eye has rarely gazed on a more strikingly beautiful production of the pencil, than the figure here exhibited, of the Rough-legged Buzzard,—*Buteo*—olim *Falco*—*lagopus*,—la Buse pattué, *Fr.*,—Rauhfüssiger Busard, *G.* From its congener, the Common Buzzard, which it, in other respects, very closely resembles, this

* See *Descriptions of the Rapacious Birds of Great Britain*, p. 412.

† See his edition of Wilson's *American Ornithology*, vol. ii, p. 64.

beautiful bird, may, at once, be distinguished by its plumed tarsi. It is a native of the northern regions of Europe and America, and merely an occasional visitant of the British islands. It preys on the smaller *Mammifera*, birds, snakes, and frogs; and is said, by Temminck, to construct its nest on lofty trees. The eggs, four in number, are of a white colour shaded with reddish-brown.

PLATE X. An equally bold and spirited figure of the Western Duck,—*Fuligula dispar*. This rare bird, a native of the northern regions of Asia and America, has been introduced into the British Fauna, in consequence of the capture of one specimen near Yarmouth, Norfolk, in February, 1830. Not having seen the specimen in question, and consequently incapable of accurately determining the situation which it ought to occupy in the Duck-Family, Mr. Gould has placed it provisionally among the *Fuligulæ*: although, from the general contour of the bird, the disposition of its colours, and the curved form of the tertials, it would seem more properly to belong to the genus *Somateria*.

PLATE XI. Two charming figures, male and female, of the Common or Brown Linnet,—*Linaria*—olim *Fringilla*—*cannabina*,—Gros-Bec Linotte, *Fr.*,—Montanello maggiore, *It.*,—Bluthänfling, *G.*,—Vlasvink, *D.* The error, committed by Bewick and other ornithologists, in describing two distinct species of this bird under the titles of the Brown Linnet and the Greater Redpole, has been most ably exposed and rectified by Mr. Selby.* This mistake had, doubtless, arisen from the circumstance of the male bird losing, in winter, the bright-red colouring of the forehead and breast, which characterizes, in a state of freedom, his summer-plumage, and not always acquiring, in confinement, that beautiful tint on the return of summer. For the knowledge of the latter fact, we are indebted, also, to Mr. Selby.

PLATE XII. A bold portrait, not, however, drawn or coloured in Mr. Gould's happiest style, of the Carrion Crow,—*Corvus corone*,—la Corneille noire ou Corbine, *Fr.*,—Corvo maggiore, *It.*,—der Rabe, die Krähe, *G.* This bird, so common in Western Europe, is seldom seen in Austria or Hungary. Temminck, moreover, states that in those countries, and those only, where the species is rare, a mixed progeny is sometimes produced by its alliance with the Hooded Crow, *Corvus cornix*.

PLATE XIII. Of the elegant and finely executed subject before

* *Illustrations of British Ornithology*, v. i, p. 315.

us, the Moustache Tern,—*Vivalva*—olim *Sterna*—*leucopareia*,—l'Hirondelle-de-mer moustac, *Fr.*,—the leading characters, as traced by Temminck, are : Bill and feet lake-red. Middle toe with its claw much longer than the tarsus. Tail slightly forked, and surpassed, in length, by the wings (at least) an inch and half. This new and beautiful Tern was discovered, by Natterer of Vienna, in the south of Hungary. Temminck has, also, found it in the marshes near Capo d'Istria, and on the coasts of Dalmatia : and, on one occasion, three individuals were killed on the coast of Picardy. It feeds on marsh-insects and aquatic worms. Propagation unknown. Of the soundness of the principles on which the species, now constituting the genus *Vivalva*, have been separated from *Sterna*, we are, at present, unable to offer an opinion. The specific name of the subject before us, is derived from the pure-white colour of the feathers investing the regions of the face and ear.

PLATE XIV. exhibits delightful figures of two species of Warbler, the Moustached,—*Salicaria melanopogon*,—la Bee-fin à moustaches noires, *Fr.* ;—and the Aquatic,—*S. aquatica*,—le B. aquatique, *Fr.*,—Rohrsanger, Binsen Sanger, *G.* They are, both, natives of Italy and South Europe, and insectivorous. The habits of the first are little known. The nest of the latter, constructed among the stems of aquatic plants, contains four or five eggs, of a yellowish-ash colour, marked with greyish-olive specks.

PLATE XV. The Common Bittern,—*Botaurus*—olim *Ardea*—*stellaris*,—Héron grand butor, *Fr.*,—Scarza stellare, *It.*,—Grosse Rohrdommel, *G.*,—Roode Roerdomp, *D.* Of this well-known and beautiful bird, Mr. Gould's figure, although rather finely coloured, is unusually defective in the outline. The head, neck and legs, are much too large for the body of the animal ; and the fierce and noble attitude which it frequently assumes, has been woefully lost sight of. The Bittern is of shy and solitary habits : its domicile, the reedy marsh ; and evening the hour of its predatory excursions. Its food consists of the smaller *Mammifera*, lizards, frogs, fishes, *Mollusca*, leeches, and aquatic insects. The nest, constructed of sticks and reeds, among the thickest herbage at the water's edge, contains four or five eggs of "an uniform pale brown,"*—or, according to Tem-

* We are somewhat surprized at this assertion of Mr. Gould. The few Bittern's eggs which we have had an opportunity of inspecting, have invariably been, as Selby correctly describes them, of a "pale asparagus-green colour." We regret our inability to appeal to the authority of Hewitson, on

minck, clear greenish colour. There are, in our opinion, few more fair and interesting birds than the "booming Bittern."

PLATE XVI. A bold, massive, and spirited representation of the Grey-Lag Wild Goose,—*Anser ferus* vel *palustris*,—olim *Anas anser* (*ferus*),—l'Oie cendrée ou première, *Fr.*,—Oca paglietane, *It.*,—Wilde gemeine oder graue Gans, *G.*,—the undoubted original of our common domestic species. Formerly a permanent inhabitant of this island, and breeding, in large numbers, in the fenny districts, this valuable bird has been driven from its haunts by the progress of cultivation; and now rarely occurs, even as a winter-visitant, among us. The place which it once occupied, appears to have been filled up by another species, *Anser segetum*. The extensive marshy districts of the more temperate regions of Europe constitute its principal habitation. The nest, constructed of vegetable materials, and placed among rushes, contains from six to twelve eggs, of a sullied-white colour.

PLATE XVII. A naturally drawn and exquisitely coloured figure of the Thrush Nightingale,—*Philomela turdoïdes*,—la Bec-fin Philomèle, *Fr.*,—Grosse Grasmücke, der Sprosser, *G.* This species,—*Sylvia Philomela*, *Luscinia*, et *Motacilla Lusc. major*, of preceding ornithologists,—has been very ably described by Mr. Blythe; and is said to connect the *Philomela* with certain species of the *Turdus* genus. It is distinguished from the common Nightingale by the greater volume of the head, thickness of the beak, and darker and deeper colouring of the plumage. It is, altogether, a larger bird; surpassing in loudness, but inferior in delicacy and variety, of song. It is a native of various parts of Germany; more abundant than the common species, in Hungary, Austria, and Poland: rarely visits France; unknown in Holland and the British islands. Its food consists of worms, insects, and berries. The nest, built in small thickets, or low and damp situations, contains brown-olive eggs stained with deep-brown, and larger than those of our British Nightingale.

PLATE XVIII. Two exquisite figures of the Dunlin or Purre,—*Tringa variabilis*,—le Bécasseau brunette ou variable, *Fr.*,—der Alpen oder veränderliche Strandläufer. *G.*,—representing two adult birds in the summer- and winter-plumage. From the striking variations of plumage exhibited by this bird, according to age and season, it has been described, by divers systematic writers, as belonging to several different genera and species. An inexperienced observer

this point: in the Numbers of his admirable *British Oology*, which we possess, the egg of the Bittern has not been figured.

would not identify individuals, in their summer- and winter-dress, as birds of the same species. Food: worms, insects, the smaller *Crustacea* and *Mollusca*, obtained by following the ebb-tide. Nest: a mere depression in the ground, lined with a few straws or withered grasses. Eggs: three or four, of large size, greenish-grey, spotted with reddish-brown.

PLATE XIX. A nicely-coloured, but not very spirited, representation of the Spotted Flycatcher,—*Muscicapa grisola*,—le Gobe-mouche gris, *Fr.*,—Gefleckter Fliegenfänger, *G.* A summer-visitant of Britain; insectivorous. Nest constructed of moss and small twigs, lined with hair and feathers, in the branches, or decayed holes, of trees, on the beams or rafters of out-buildings. Eggs: four or five, greyish-white, with reddish-brown spots of a deeper hue towards the obtuse extremity.

PLATE XX. A fine and delicately-coloured figure of the Caspian Tern,—*Sterna Caspia*,—l'Hirondelle-de-mer Tschegrava, *Fr.*,—*Sterna maggiore*, *It.*,—Grosse oder Caspische Meerschwalbe, *G.*,—terminates this Part. Dispersed over the northern shores of Africa, the east of Asia, and all the more temperate portion of Europe, and preferring inland seas, as the Mediterranean, Black, and Caspian, it is an occasional, yet rare, visitant of the British coasts. Food: fishes, *Mollusca* and *Crustacea*. Nest: a mere hollow, scraped in the sand or shingle. Eggs: two or three, of a greyish-green colour, sprinkled with large brown and deep-black spots. As distinguished from the other Terns by the relatively larger size of the bill, the specific designation, *Megarhynchos* (Gros-schnablige, *G.*), applied by Meyer and Bechstein, is peculiarly applicable to this noble species.

This Analysis will be continued in our next Number.

P.

Paradise-street, Birmingham,
December, 1838.

PROCEEDINGS OF METROPOLITAN SOCIETIES.

 LINNÆAN SOCIETY.

NOVEMBER 6th.—The meetings of this society for the present session were resumed on this day. Numerous donations were announced as having been made during the recess, the principal of which were an extensive collection of dried plants from Demarara, presented by Mr. Schomburgk, and about twelve thousand specimens of dried plants, also from South America, together with a collection of books, bequeathed by the late Mr. Winch, of Newcastle. A note was read, from Jonathan Couch, Esq., of a specimen of Wilson's Petrel (*Thalassidroma Wilsonii*) having been found in a field near Polpero, Cornwall, in August last. This species of Storm Petrel had long previously been suspected to occur upon the western coasts of Britain; and Mr. Audubon had already obtained specimens of it within a day's sail of Iceland: it is the *Storm Petrel* described in Wilson's *Ornithology*. There were also read some interesting observations "On the cause of Ergot," by Mr. Smith, A.L.S. The author considers the Ergot to be a morbid growth of the albumen, resulting from the attacks of a minute parasitic fungus, which consists of oblong transparent cells, resembling the sporules of other fungi, and either free or united together in the form of articulated filaments, in which state they constitute the crust of the Ergot. The anthers, as well as the ovarium, are subject to the attacks of this minute parasite; and Mr. Smith supplied a list of a number of grasses which he had also observed to be occasionally affected by it.

NOVEMBER 20th.—A number of drawings of the fishes of the Red Sea were exhibited by Capt. Meadows Taylor. Professor Doo then read a description of a new genus of plants from South Africa, belonging to the natural family *Bignonaceæ*: after which a communication was read, from Dr. Shotsky, "On a new species of *Lepidosperma*," nearly allied to the *L. elatior* of Laballidière, and which was discovered by the author in the thick jungles which cover part of Tasman's Peninsula. The sharp edges of its long and slender leaves, which are from ten to fifteen and even twenty feet in length, were stated to inflict severe wounds on those who happen to pass through the places where this plant grows. Several paintings were exhibited, accurately representing the general aspect of vegetation in the above-named peninsula and New South Wales.

 ZOOLOGICAL SOCIETY.

OCTOBER 9th.—The first portion of an elaborate paper on the osteology of the *Marsupialia* was read by Professor Owen, treating

exclusively on the conformation of the cranium. Several additional indications of the inferiority of these animals to other mammalia were pointed out; and it was noticed, for the first time, that the sutures of the skull do not become united with age, as happens with the rest of the class. A new genus of this group was characterized under the name of *Thalacomys*, founded on the *Perameles lagotis*, (Reid), all the incisor teeth of which are placed contiguously. In treating of the maxillary bones, Professor Owen took occasion to allude to the celebrated Stonefield fossils, and to the opinions recently put forth respecting them by Professor de Blainville. He had examined four specimens of rami of the lower jaw, whereas the eminent French zoologist was acquainted only with the cast or model; and did not hesitate to pronounce them to have belonged to marsupial mammalia, from the circumstance of the rami of the jaw consisting of only a single bone; also from the form of the inferior condyle; and from the fact of the molar teeth being rooted in their sockets by two distinct fangs. Mr. Martin then called the attention of the meeting to the fact, not previously noticed, of the last inferior molar of the two Mangaluys, or dusky-coloured white-eyed Monkeys (*Circopithecus aethiops* and *fuliginosus*, Auct.), possessing a fifth tubercle, as in the *Macaci*, *Inui*, *Cynocephali*, and also the *Semnopithecii*, and *Colobi*, whereas the other species of *Cercopithecus*, as was well known, have only four tubercles to that tooth, as in man and the three genera of Apes. It was remarkable, also, that the facial angle of those two species was greater than in any other *Cercopithecii*, a further approximation to the Macaquo; and Mr. Martin concluded by proposing that the term *Cercocebus*, applied by the late Mr. Bennett to several of the larger *Cercopithecii*, which, however, presented no absolute distinguishing character, from the smaller ones, should be restricted to the two animals in question. In the discussion which followed, Mr. Blyth remarked another distinction observable in the two Mangaluy Monkeys, which, though of little consequence, he deemed to be still worthy of mention: it was, that whereas all the *Cercopithecii*, as now limited, have the hairs on the upper parts grizzled or annulated with two colours, the same was not the case with the *Cercocebi*. Professor Owen then read a letter which he had received from Dr. Ouley, announcing the presence of a small but distinct *ligamentum teres* in the Coypu (*Myopotamus coypu*), which had been recently asserted not to exist.

OCTOBER 23rd.—A letter was read by the secretary from M. Julian Desjardins, the secretary of the Natural History Society of the Mauritius, announcing that he would embark for England on the 1st of January next, with extensive natural history collections, which were partly intended for the museum of the Zoological Society. Another was also read from Col. Campbell, dated Alexandria, stating that he could succeed in attaining no additional information respecting the white African Elephants, which he had hoped to have forwarded. A third from Lieut. Col. Dogherty, the governor of Sierra Leone, who remarked that he shortly expected to obtain

and send a male and female Chimpanzee, which were numerous in the interior ; but that, on account of the superstitious feeling which the inhabitants entertained towards the Hippopotamus, he had reason to fear that his endeavours would prove unsuccessful to transmit a living specimen of that animal, which was also of common occurrence. Mr. Waterhouse then exhibited specimens and numerous crania of two species of *Galæopithecus*, which he was unaware had previously been described, though Professor Temminck appears to have alluded to them in his statement that two species existed of this genus, which were well characterized by osteological distinctions. The majority of authors, following M. Geoffroy, had denoted three species, distinguished by colour only, which, in both of those now exhibited, was extremely variable, and consequently of no value whatever as a means of discrimination. He proposed to name them *G. Temminckii* and *G. Phillipinensis*. The former was of superior linear dimensions, but with smaller hands, and also ears : its teeth were separated by intervals, and the parietal ridges of the cranium were widely apart. The latter was a stronger-formed animal, the teeth of which were much stouter and more approximated, and the parietal ridges almost contiguous, thus allowing more extended space for the muscles which moved the jaw ; its muzzle also was more obtuse and rounded, and the conformation of the lower jaw strikingly different. Mr. Blyth next read a paper on the dental system of the *Lemuridæ*, in which he showed that the reputed outer pair of lower incisors of that group of animals were the representatives of the inferior canines of other *Quadrumana*, no member of that order possessing more than four incisive teeth to either jaw. This might easily be seen by opposing the successive teeth of both jaws, beginning with the most hindward ; or it might be ascertained by what was asserted to be an universal law throughout the class, that the inferior canines closed or locked outside or before the upper ones : the first false molar, in the Lemurs, assuming the form of a canine, as happens in some other instances. In the genera *Tarsius* and *Nycticebus*, it was stated that the true inferior canine assumed more of its ordinary form and dimensions ; while in *microcebus*, and the nearly allied *Cheirogaleus* (*Lichanso* of Gray), the first false molar scarcely differed from the next. In *Galæopithecus* the superior canines are altogether wanting ; and this curious genus further differ from all other *Quadrumana* in the incompleteness of its bony orbits. It has four incisors to each jaw, the medial of which are separated by a very wide interval ; this interval is lessened, in the majority of *Lemuridæ*, in proportion as the inferior canines approximate, the latter being directed horizontally forwards, like the intervening incisors, which, in consequence of the approximation of the canines, are extremely narrow or compressed, the lower incisors and canines together being admitted within the interspace of the upper jaw. In *Propithecus* of Mr. Bennett, and the Indris (*Lichanotus*), the inferior canines are so approximate that one pair of the lower incisors is necessarily sacrificed, which the

author regarded as an approach to the rodent character of *Cheiromys*; in which remarkable genus the incisors have altogether disappeared, the canines of both jaws occupying their site, precisely as in the true *Rodentia*; wherein also those of the upper jaw pass through the intermaxillary bones. Mr. Blyth suspected, however, that the rodent teeth of *Cheiromys* did not possess persistent formative pulps, as in the order *Rodentia*, no other instance occurring of continuously growing teeth throughout the great series of *Primates* and *Feræ* of LINNÆUS. The same gentleman next read some observations on the *Plantigrada* of Cuvier, which he showed to consist of one natural group and a portion of another, which comprised the rest of the *Carnivora* that are destitute of a cæcum. The true *Plantigrada*, which place the entire sole upon the ground in walking, were stated to be comparatively few in number; and they were all further distinguished by possessing two tuberculous molars posterior to the carnivorous or cutting grinder of each jaw. The various species, with the exception of the two largest Bears, are all arboreal; and such of them as inhabit northern climates become torpid in winter, which is not the case with any of the others, so far as known. The genera *Ursus*, *Ailurus*, *Procyon*, *Nasua*, *Ictides*, and *Cercoleptis*, were referred to this first division. The rest were stated to be only semi-plantigrade, none of them bringing the heel quite to the ground; and they have only one tuberculous molar, which varies greatly in extent of surface: all of them diffuse, when irritated, a powerful odour, which in some is intolerably fetid. This group sub-divides into two principal sections; that of the Badgers, Ratels, Skunks, &c., which have thick and heavy bodies and stouter limbs, generally well-adapted for burrowing; and that of the Weasels, Martens, &c., with long vermiform bodies, which again sub-divides into the Weasel and Otter sub-sections. None of the Badger section, it was asserted, the members of which have been generally approximated to the Bears, ever climb trees like the latter. Respecting the *plantigrade* character, Mr. Blyth observed that it appears to have been not a little misunderstood, the remark of Cuvier, that it was indicated by the degree of bareness of the sole, having apparently misled several naturalists; for even in the Polar Bear, and the Pander (*Ailurus*), the soles are completely covered with hair. In the Martens, at the head of which genus he placed the *Ursus gulo*, Lin. (*Gulo arcticus*, Auct.), which, excepting in size and massiveness, he could not perceive differed at all from other Martens, surprising differences might be observed in the modification of the foot, from *M. flavigula* of the Himmalayas, which has the toes joined to their extremities, and the sole bare, as in the Badgers, to *M. Zibellinæ*, the Sable, the toes of which are as separate as in a Weasel, and the foot hairy underneath. Mr. Blyth lastly exhibited the head of a half-Hercford half-Durham ox, of most gigantic dimensions, the horns of which exceeded four feet round at the base. It appeared, however, to be a monstrous production, the head, which was covered by its skin, seeming to be double, as indicated by the

existence of two radiating centres of hair on its enormous forehead. The body was stated to have offered nothing remarkable, either in size or external structure. Professor Owen then concluded his paper on the osteology of the *Marsupialia*, describing the remainder of the skeleton; and he observed that he found it necessary to institute the minute researches and enter into the detailed descriptions which he had done, in order to enable others as well as qualify himself to undertake the determination of fossil marsupial remains, some valuable specimens of which had lately been entrusted to his care by the enterprising Australian traveller, Major Mitchell.

NOVEMBER 13th.—Mr. Waterhouse read a paper on the marsupial genus *Petaurus*, which he considered divisible into three marked sub-genera, distinguished by differences in their dentition. M. Desmaret had already separated the Pygmy Petaurist (*Didelphis pygmaeus*, Shaw), under the name *Aerobatus*, which he accordingly adopted: this sub-division possesses thirty-six teeth in all, the peculiarities of which are stated in the *Regne Animal*. The Great Petaurist (*P. toquanoides*, Desm.; *Didelphis petaurus*, Shaw) formed the type of the second sub-genus, comprising several species, to which the appellation *Petaurus* was proposed to be restricted: the members of this group have in all thirty-four teeth. Lastly, the Sciurine Petaurist (*P. sciurea*), with three or four others, were brought together under the designation *Belidea*, possessing forty teeth, which exhibit considerable modification when compared with those of the preceding: it had also a perfect bony palate, which was not the case with the others. A new species was described under the denomination of *Belidea breviceps*. Mr. Waterhouse then proceeded to offer some remarks on the American Badger of authors (*Nules Labradoriens*, Richardson), of which he exhibited some crania, together with specimens of that of the common European Badger. The differences were so very considerable that he could not hesitate about the propriety of making a separate minimum sub-division of the American animal, for which he proposed the appellation *Taxidea*. In the European Badger, the carnivorous grinder is small, and the tubercular exceedingly developed, the carnivorous character of dentition being reduced to its minimum in this species, of all the *Carnivora* which possess but one tuberculous molar. In the American Badger the carnivorous grinder is increased, and the tubercular reduced to an equality of size; the false molars, also, are more trenchant; the lower jaw is not locked in its socket, as in the true Badgers; and, finally, the skull is very differently formed, being widest posteriorly, where it is abruptly truncated, as in the majority of eminently fossorial mammalia: its anterior claws are likewise much more powerful than in the European Badger, altogether indicating an animal which burrows with still greater facility, and which subsists on a more carnivorous regimen. Professor Owen then described the cranium and dental characters of the Koala (*Phaseolaretos*), from specimens of three different ages, the dentition of this genus having never been before completely de-

scribed. There are five molars on each side of both jaws, each with four tubercles, excepting the first; and the general character is nearly the same as in the Phalangers, to which this genus is very intimately allied.

NOVEMBER 27th.—Dr. Horsfield exhibited a large undetermined *Macacus*, which, together with some Squirrels and other mammalia, and an extensive assortment of birds, had been forwarded to the India House Museum, by Captain M'Cleland, from Upper Assan, where they had been collected by the gentleman sent by the East India Company to explore the tea districts. Mr. Ogilby next exhibited some specimens of a Pika (*Lagomys*) procured from a considerable altitude on the Himmalayas, the other species of this genus, with the exception of that of North America, inhabiting the plains of Tartary and steppes of Siberia, where the hoards of dried grass piled over the entrance of their burrows supplied provender for the horses of those who traversed that bleak region in winter. Col. Sykes then exhibited forty-six exquisite coloured drawings of the fishes of the Deccan, no less than forty-two of which proved to represent new species: by far the greater number of them were referable to the division *Malacopterygii*, so numerous also in the inland waters of this part of the world: there were a few, however, of what had hitherto been regarded as exclusively marine forms, allied to the Pipe-fish (*Syngnathus*); and a single species of Eel, beautifully marked and coloured. The whole had been taken from recent specimens immediately after their capture, the gallant colonel having constantly employed an artist, under his immediate eye, when encamped on the plains of Indostan.

DECEMBER 11th.—Several communications were read from different correspondents, announcing presents of various kinds to the menagerie and museum; the principal of which were an enormous wasp's nest, sent by the governor of Ceylon, and which had been constructed beneath the shelter of a talipot leaf, at the height of seventy feet from the ground; and a collection of fossil tertiary shells from the vicinity of Turin. Dr. Horsfield described an immense number of birds which had been forwarded to the India House Museum, by Captain M'Cleland, from Assan, and exhibited coloured drawings of all the species. Some living European Tree-frogs (*Hyla viridis*) also were exhibited, some of which had lived three years in this country. The greater portion of the evening was consumed in the reading of Dr. Horsfield's communication; and the immense wasp's nest before mentioned, which was entirely similar in construction to the pendant nests of that genus common in some districts of Britain, lay on the table for inspection.

ENTOMOLOGICAL SOCIETY.

NOVEMBER 5th.—This was a special meeting, summoned for the purpose of taking into consideration various proposed alterations in the bye-laws, relating to the admission of ordinary and corresponding members, which led to considerable discussion. Rules having been at length adopted, the meeting proceeded to the ordinary business of the night, announcing donations, and reading the correspondence. Mr. W. Stephens exhibited some living apterous insects from Java, and also a fine specimen of *Cotocala fuaxeni*, that had been recently captured near Arundel. The President, J. F. Stephens, Esq., in a speech from the chair, announced and delivered to Mr. G. Newport the prize of ten guineas, for his essay on the natural history and anatomy of the *Athalia centrifoliæ*, one of the insects which destroy the turnip. Mr. Holme, of Corpus Christi College, Oxford, communicated a notice of recent entomological captures. Lastly, some observations were read by R. A. Ashton, Esq., upon the mode of construction of the winter cocoon of the Goat-moth, and upon the casting of the coats of the internal organs by caterpillars during moulting.

BOTANICAL SOCIETY.

NOVEMBER 2nd.—A paper "On the Botany of Coleham, Kent," was first read by Dr. Bossey. It enumerated, among other rare plants found in that neighbourhood, *Althæa hirsuta*, *Salvia pratensis*, and *Brachypodium pinnatum*. Dr. Bossey thought that the habitats of the *Althæa* and *Salvia* had not previously been correctly given. He commented upon the importance of botanists recording, and correctly defining, the habitats of plants, as much difficulty is experienced in the procuring of rare specimens in consequence of such omission. Mr. D. Cooper, the Curator, then made observations on various specimens upon the table, which had been presented by different members.

NOVEMBER 16th.—The fruit, bark, and liber, of *Bertholetia excelsa*, were exhibited, having been presented by Mr. Schomburgk. The only paper read was by W. M. Chatterly, Esq., "On the importance of Botanical Statistics," illustrated by the order *Coniferæ*. The importation, excise, consumption, &c., of the Pine tribe, were severally stated, and a variety of other interesting details were entered into.

NOVEMBER 29th.—Anniversary meeting. The Report of the Council stated that the number of members elected during the past year was forty-seven; of British plants received, 18,592 specimens, including 1,050 species; of foreign plants, about 10,000 specimens, including 4,000 presented by the Botanical Society of Edinburgh

(from whom a valuable collection of British plants had also been received), and others. The Council had appointed local secretaries in different parts of the kingdom; also at the Cape of Good Hope and South Australia; and had made arrangements with the Society of Edinburgh for an annual exchange of plants, which would be an advantage to the members of both societies. The Report was carried unanimously. By the ballot for officers for the ensuing year, J. E. Gray, Esq., F.R.S., was re-elected President, who thereupon appointed J. G. Children, Esq. V.P.R.S. and Dr. Macreight, F.L.S. Vice-presidents. The President's address was congratulatory, pointed out the advantages derived from an interchange of plants, drew attention to the increase of the society's herbarium from the excursions made in the vicinity of London, and the benefits accruing to each member therefrom; and hoped for continued exertions in the same way, as a considerable number of rarities had thus been already collected.

GEOLOGICAL SOCIETY.

NOVEMBER 5th.—The first meeting of this society for the present season was held on this day. Professor Owen read a paper on some fossil remains of *Pachydermata*, obtained from the fresh-water deposits of the Isle of Wight, and which were referable to the extinct genera *Charopotamus*, *Anoplotherium*, and *Palæotherium*, the first of which had not previously been ascertained to occur in that locality. The discoveries of Mr. Allen and Mr. Pratt had long since proved the existence of both the others in the quarries of Bin-stead; but the collection which had recently been made by Mr. Fox enabled the author to determine more fully several of the species which had been first ascertained by Cuvier in the gypsum quarries of Paris; and to show also that the *Charopotamus*, which was most nearly allied to the Peccary (*Dicotyles*) among existing animals, another of the extinct generic forms which had been reconstructed by the illustrious French naturalist from fragments found in the celebrated ossiferous deposit of Montmartre, occurred likewise in the contemporaneous older tertiary beds of this country. The portion of this curious animal described by Mr. Owen consists of a nearly perfect right ramus of the lower jaw, nearly nine inches in length, and containing three tuberculated true molars, and two conical anterior or false molars, with the socket of a third, and part of what was deemed to be the tusk or canine. The last true molar, which was unknown to Cuvier, presents the same structure as the corresponding tooth of the Peccary, as is likewise the case with the two others: but the false molars have each two fangs, and are relatively larger than in the Hog tribe. In the outline of the inferior border of the jaw, the *Charopotamus* also resembled the Peccary; but in the size of the coronoid process, and prolongation back-

wards of the inferior angle of the jaw, this animal exceeded any other known unguled quadruped, and approximated the *Carnivora*; in reference to which Professor Owen drew attention to the carnivorous propensity of the common Hog, which, of all existing genera of *Pachydermata*, offered decidedly the nearest approach to the carnivorous type of structure. The author farther added, as a circumstance not devoid of interest, that the Peccaries should now be confined, in their geographic range, to South America, where the Tapir, the nearest living analogue of the *Palæotherium* and *Anoplotherium*, still exists; and concluded by referring the other specimens of Mr. Fox's collection to the species *Anoplotherium commune* and *A. secundarium*, and *Palæotherium medium*, *P. arassum*, *P. minus*, and *P. curtum*.

Some remarks were then offered on a jaw found at Binstead in 1830, and considered to have been allied to the genus *Moschus* among the *Ruminantia*, but which Professor Owen showed to approximate rather to the extinct genus *Dichobune* of Cuvier, though in some respects the fossil also resembled the existing *Moschus moschiferus*: its characters were elaborately described.

Dr. Mitchell then read a paper "On the deposit of Blue and Brown Clay so extensively distributed over the eastern counties, and characterized by containing rounded nodules of chalk, and masses of various other rocks and fossils from nearly every secondary formation in England." The chief localities were enumerated near which the deposit was stated to occur, as also the principal places where the nodules of the several secondary rocks, with their fossils, were found to be enclosed; and the paper concluded with some observations on the probable direction of the currents by which this important geological deposit was accumulated.

NOVEMBER 21st.—The greater portion of this evening was taken up by a very elaborate paper of Professor Owen, on two jaws of the fossil *Thylacotherium prevostii* (Valenciennes), from Stonesfield.—The nature of these remarkable fossils has recently excited so much interest, from the importance of the generalizations resulting from their determination, that it is, perhaps, needless to premise that the discussions which have been lately held respecting them at the French Academy, at the meeting of German naturalists last autumn, and since in this country, originated in a memoir published by the eminent successor in the chair of Cuvier, Professor de Blainville, the object of which was to show that the animals in question, the remains of which are imbedded in the oolitic secondary formation, did *not* pertain to the class *Mammalia*, to the marsupial division of which they had been referred by Cuvier and others. M. Valenciennes had already published an attempted refutation of the bold and plausibly supported views of his illustrious colleague; but as the lapse of ages was so immense from the period when these fossils were entombed, to that of the tertiary formation, wherein the remains of mammiferous animals first re-appeared, this circumstance alone led many naturalists and palæontologists to regard with much

suspicion the identification, as portions of marsupial quadrupeds, of the very ancient secondary organic remains under consideration.—Mr. Owen commenced by passing a just eulogy on the skill and discrimination uniformly evinced by Cuvier in forming a judgment on the affinities of an external animal, from inspection of a fossil fragment; and proceeded to examine in succession the various objections which had been raised by Professor de Blainville, laying particular stress upon the fact that that naturalist had only examined casts or models of the fossils in question, whereas the author of the present paper had inspected and carefully studied the originals. Mr. Owen's arguments were chiefly based on the distinctness of the true and false molars and of their sockets, each tooth being provided with two or more separate fangs, which were not anchylosed with the jaw-bone; on the unity of the jaw, which is composed of three pieces in the oviparous classes; on the form of the coronoid process, which, though lost, had left its impression on the matrix, which showed it to have resembled that of the Opossum group; on that of the inferior projecting condyle; and finally, it was stated that in the angle of the jaw of the *Marsupiata*, there is a constant modification not hitherto considered by the anatomists who have written upon the Stonesfield fossils, but which would serve to prove, if co-existent with a convex condyle, the marsupial nature of a fossil, though all the teeth were wanting: the angle of the jaw being bent inwards, in the form of a process, varying in shape and degree of development in the different genera. In the course of this paper, Mr. Owen frequently alluded to the late memoir of M. Valenciennes, wherein the conclusions of Cuvier respecting these fossils he deemed to be ably and successfully advocated. Two other communications were afterwards read, one by Mr. R. W. Fox, "On the formation, by voltaic agency, of Mineral Veins;" and the other, by Captain Alexander, "On the discovery of portions of the Mastodon teeth near Southwold." A brilliant discussion then ensued, in which the opinion of M. de Blainville was supported with great ability by Professor Grant, who had long previously entertained the same idea respecting the nature of the Stonesfield fossils, and had annually, as was well known to many naturalists present, expressed it in his course of lectures delivered at the London University.

DECEMBER 5th.—A communication was read from the council of the Natural History Society of Liverpool, entitled "An account of the footsteps of the *Cheirotherium*, and five or six other unknown animals, lately discovered in the quarries of Storeton Hill, between the Mersey and the Dee," and which was illustrated by some admirable drawings by J. Cunningham, Esq. In 1834, there were discovered in several quarries at the village of Hessberg, near Hildberghausen, casts in a gray quartzose sandstone, resembling, to a certain extent, a human hand, and for which Professor Kaup proposed the inappropriate name, as it now appears, of *Cheirotherium*. Similar casts were discovered in the early part of last June, in Storeton Hill quarries, which the workmen designated petrified hu-

man hands. The circumstance having been made known to the Natural History Society of Liverpool, a committee was appointed, which drew up the report under consideration, The red sandstone of the peninsula in which the Storeton quarries are situated, may be separated into three principal divisions, the medial of which is worked at Storeton, where the strata of marl and sandstone are of unequal thickness, and are separated by their seams of whitish clay. It was on this clay that the *Cheirotherium* and other animals had imprinted their footsteps; and the casts occur on overlying beds of sandstone, not exceeding two feet in thickness each. The best defined casts are those of a tolerably large animal, the hind feet of which measure nine inches in length by six across, and are about twice the size of the fore feet, the impressions of which latter are always immediately before the tread of the hinder, by which, in some instances, they are even partly effaced: in one case, the track of an individual was traced for sixteen feet along a single slab of sandstone. Although the footsteps of *Cheirotherium* are the most prominent, yet the Storeton quarries have yielded slabs covered by raised casts, derived apparently from Tortoises and saurian reptiles, the webs between the toes of which can be distinctly traced; and numerous smaller casts are very abundant, crossing in all directions, and proving that, at the period when these layers of clay and sandstone were deposited, the locality was thronged by multitudes of living animals. A note by Mr. J. Yates was appended to the report, giving a brief account of sketches of four distinct varieties of impressions, not including those of the *Cheirotherium*, or the web-footed animal. The next paper was by Sir Philip Grey Egerton, and was also "On the *Cheirotherium*." The two specimens particularly described were believed to have been obtained from one of the beds of sandstone which alternate with marl, in the upper part of the new red formation, near Tarporley. Sir Philip clearly showed that the marginal digit, or perhaps appendage, the exact nature of which is not obvious, but which had been considered as a thumb, would be the representation rather of the fifth than of the first toe, as its position was outward, unless, indeed, the animal crossed its feet in walking, which was altogether improbable. The casts of impressions which he now described being evidently those of a different species from the animals of Hessburg and Storeton, he proposed to term it, in compliance with the adage *ex pides Herculem*, from its very superior size, *Cheirotherium Hercules*.

CRITICAL NOTICES OF NEW PUBLICATIONS.

Elements of Physiology, by J. Müller, M.D. Professor of Anatomy and Physiology in the University of Berlin, etc. Translated from the German, with Notes by William Baly, M.D. Graduate of the University of Berlin, and Physician to the Pancras Infirmary. Illustrated with steel plates and numerous wood engravings. Part III, containing the Nervous System. 8vo, London: Taylor & Walton.

Human Physiology, by Dr. Elliotson. 8vo, London; Part II, containing the Animal Functions.

PHYSIOLOGY, the science of the laws which govern and regulate the functions of the organs of man, and the aggregation of those functions, called life, is by far the most arduous, although, perhaps, not the most obviously useful, of the medical sciences. Based on anatomy, and demanding the severest process of induction in reasoning on the results of experiment and observation; exercising the higher faculties of the mind, and demanding for its perfect intelligence the auxiliary aid of much and varied collateral knowledge, it has nevertheless invited and received the devotion of minds to whom, for the above reasons, it would not presumably be attractive; it has also occupied more congenial intellects, almost to the exclusion of other pursuits, except such as are cognate to the master subject: notwithstanding which advantages, it has progressed less rapidly than other branches of the healing art, of more practical and more apparent usefulness to man. There would seem, therefore, to be difficulties inherent in it, and not explicable on grounds which usually will account for the retardation of other studies.* It cannot be denied that daily experience is disproving the mischievous doctrines which deaden enterprise by anticipating the impossibility of success. Even physiology itself occasionally presents an example of some fact being established, and superseding either an absurd hypothesis,†

* A very notable instance of the correction of errors, as plausible as profound, and which might be said to be exclusively in the possession of the learned, is the repudiation of the notion that the "active principle of the nerves," is the electric or galvanic fluid. A mistake that may almost be called gross, especially in the present state of our knowledge: yet we believe there has been no formal recantation; nerves being, as *wet cords*, good conductors of the galvanic fluid, it was inferred that conduction of the galvanic fluid was their proper office, and therefore that the nervous and galvanic were the same, the fluid being generated in other situations. This testimony (?) received farther confirmation from the *believed* fact that, when the vagus nerve was *divided*, and a galvanic current passed through the divided vagus to the stomach, digestion of food was performed as if the nerve had remained

or the hopeless incredulity which had abandoned the matter in despair: thus stimulating and justifying fresh exertions in the flagging or disappointed enthusiast. But it is to us more than questionable whether *all* the enquiries of the physiologist can be answered in *any* time; for they trench on ground in its very nature forbidden to mortal access, and involve the enquirer in bewildering speculations, from which the mind recoils, stunned with awe and amazement, but unilluminated by a single additional ray of knowledge. Here is the prime question in physiology—What is life? The boundary line dividing science from the knowledge of himself, denied to man by his Creator, it is not easy to perceive; for physiology, if pushed far, and then not out of its track, soon merges in psychology, after which we speedily come to a *punctum stans*. It is not here the object to discourage cultivation, nor to depreciate the valuable and interesting additions which genius, from time to time, has added to our physical knowledge of ourselves—far from it; but, with regret, we add that desert has greatly exceeded discovery. Our embarrassment increases when we come to find that the most distinguished physiologists differ widely from each other in some essential matters, where “both cannot be right;” yet both are plausible, and each has numerous followers, who hold, like good disciples, fast by the faith of their respective masters. It is fortunate for humanity that, with such diverse doctrines in physiology, there is no corresponding variety—to the same extent—in the application of its laws in the cure or treatment of disease, with which, indeed, it interferes less than it might be presumed to do, considering the estimation in which it is held by the scientific physician.

An example of the “DISPARATUS” in physiology may be made tolerably intelligible to lay readers thus: those laws called *physical* which govern inorganic *matter*, and which now, by the extension of knowledge, are familiar to most men of even limited education, are by some philosophers contended to be identically the same with the laws which regulate living organic matter. While, on the other side, it is insisted that the functions of organs are performed in obedience to *special* laws, which they call *physiological* or *vital*, and

sound. The author of the experiment forgot, as did his disciples, that the portion of a divided nerve which is separated from the brain is capable of resuming its function for a short season when stimulated—for which purpose it is not shown that the galvanic fluid is exclusively required, nor that, as in other nerves, *ordinary stimuli* as well as *special*, will not produce the effect. Also, the galvanometer failed invariably to prove the evolution of the galvanic fluid by means of the nerves, as conductors or generators. And a most conclusive disproof of the non-identity of those fluids (nervous and galvanic) would seem to be that, if the fluids are the same, there should not be the following dissimilarity: if a tight ligature be placed on a nerve in the living animal, the nerve no longer acts as a conductor of the *nervous* fluid: now, if the same proceeding be adopted again, the nerve, despite its ligature (which in the first case, prevented the transmission of the nervous fluid), perfectly well as before the application, serves as a conductor, and transmits the shock, galvanic or electric.

which, it is affirmed, have not even an analogy to the laws presiding over inorganic matter, viz. those of *Physics* and *Chemistry*. To many articles of which latter creed we seriously incline; and, without entering into the discussion, may just indicate that if those whom we, for distinction sake, but with no disrespect, somewhat paradoxically call the physical or material physiologists, are right in their assumptions, it would seem they ought not to be puzzled by the enquiry, "What is life?" more than by the question, What is motion, or electricity, or gravitation? All of which, with even a scanty knowledge, we know greatly more of than "life;" and yet they must be sorely distressed for a definition of life so excellent as to permit no exception to be taken to it. A curiosity to know more of ourselves than observation, unaided by science, affords, is natural to all mankind; and therefore it is that the professional inquisitors are not the monopolists of an interest only not universal: this fact, and the *popularity* of the subject, by its appealing to every man, in some shape, about dinner-time, have rendered *DIGESTION* an object of diligent and daily perquisition. Taste and utility invest it with consequence in both health and disease: the first, to reconcile what is pleasant with that which is harmless in our food; the second, to obviate or relieve disorders by means of diet. Man is by design an omnivorous animal;* and it can scarcely consist with the recognition of a fact so indisputable to say, *à priori*, that any food (not poisonous) is unwholesome for him who is by omniscience adapted to derive support and nourishment from all; and who, without such benevolent and wise provision, would perish of hunger in regions where he notoriously subsists and flourishes on substances which, in the imaginations of the more refined or more ignorant of his remote fellows, excite feelings of horror or disgust; many, indeed, of whom would actually starve on the revolting viands, unless, like

* "As the human race exists in more parts of the globe than any other kind of animal, we should have been but ill provided for if we had been destined to subsist on either description of food alone; whereas man now inhabits some countries which afford either vegetable or animal food only. Man is by far the most omnivorous of all animals, capable not only of feasting on luxurious combinations derived from each kingdom, but of subsisting with health and vigour on nearly one kind of the most simple food. Thus, to mention a very few instances, many at present live on vegetables only, as the tubera of solanum (potatoes), chesnuts, dates, &c. the first families of mankind most probably subsisted for a long period merely on fruits, roots, corn, and pulse. The nomadic Moors have scarcely any other food than gum senega: the inhabitants of Kamtschatka, and many other shores, scarcely any other than fish. The shepherds in the province of Carraccas in South America, on the banks of the Orinoko, and even the Morelachs in Europe, live almost entirely on flesh. Some barbarous nations devour raw animals. This cannot be denied to have been formerly the case with the Samojedes, the Esquimaux, and some tribes of North America. Other nations are no less remarkable in their drink. The inhabitants of many intertropical islands, especially in the Pacific Ocean, can procure no sweet water, and instead of it drink the juice of cocoa-nuts. Others take only sea-water: and innumerable similar facts clearly prove man to be omnivorous."

himself, they were indigenous with the diet. Such well-known facts suggest the policy of learning to increase and to economize the materials of nourishment, many of which are wasted or neglected in great abundance : a circumstance more discreditable to the intelligence of the country than to its ignorance, from which last it cannot entirely proceed, as general science possesses the means of vastly multiplying wholesome food from sources which it were sinful to neglect longer. However pernicious may be intemperance and excess on individuals—and circumstances tend to make both those terms arbitrary in particular cases—it is certain that, on the whole, luxury and refinement, as the fruits of intelligence, are favourable to health and longevity ; and we are truly taught by reasoning and observation that quantity of food affects the health more directly than its quality, due regard being taken to ensure those advantages of preparation which do not significantly add to its cost, yet greatly augment its pleasant sapidity, and neutralize or modify an ill flavour, and subserve to diminish the waste of unemployed portions.

It may be necessary that our knowledge of the function of digestion, and the process of renovation or nutrition, shall be greatly increased, before we can say with certainty to what extent science may render subsidiary to the sustentation of man, a long catalogue of articles of natural and artificial production, which, in the prodigality of his present resources of civilization, he rejects or entirely overlooks.

Physiology cannot be more usefully employed than in enlightening a subject of such invariable interest as enquiring into the nature of digestion and nutrition, and deducing therefrom conclusions which will assist him in the choice, preparation, and economy of food. In investigations for this purpose, none have approached in certainty and usefulness the observations and experiments of Dr. Beaumont, which gave results wholly unaffected by those disturbing causes in physiological experiments of which we shall presently, with justice, complain.

The pursuit of physiological studies demands untiring zeal, not far removed from enthusiasm, combined with habits of industry, patient research, and abstinence from a tendency to hasty generalization. The sense of vision should be acute, and that of hearing not less so ; for both those faculties are often called into requisition, as is also a correctly discriminating power of smelling, and an exquisite delicacy of manipulation in performing experiments on the minute structures and objects which are the subject of inquiry.

It is probable that to deficiency in some or all of those pre-requisites we owe the discouraging and dissimilar results from identical investigations ; and it cannot be otherwise than that too often a new and disturbing element, more or less fatal to the accuracy of the results, is introduced in the way we are about to describe. Our objection has oftener been anticipated or overlooked than obviated or corrected. In experiments performed on living animals, the deductions must be frequently faulty, or altogether fallacious ; for, how-

ever skilfully performed, the organs investigated must have their functions greatly deranged by the injuries unavoidably inflicted by the anatomist; doubtless, some of the phenomena are modified by such violence, but, notwithstanding, they are assumed and described to be the normal qualities and performances. This is an evil more easily complained of than averted or redressed; yet it happens oftener than it is allowed for, and, with very astute professors, occasionally goes for less than it is worth.*

Far more stress is frequently laid on a circumstance of no deteriorating consequence to science, although not with the same impunity to humanity, which is thereby impeached to an unmerited extent, and sometimes with more exaggeration than reason, or altogether without truth and justice. It is said, the alleged cruelty of many experiments withholds their justification. Now it may have happened that some were of unnecessary severity, or occasionally uncalled for; but these charges, if sustained, impugn neither the necessity nor usefulness of the majority, and cannot be objected against more than a very few. No man of morality, and therefore of religion and humanity, can look with indifference on the infliction of pain, nor without abhorrence and indignation when the cruelty is malignant or wanton. We disclaim the imputation of insincerity and unworthy motives, for *some* of those persons whose tenderness leads to the complaint; for we well know many estimable individuals whose sensibility prevents them from assenting to the proceedings (objected to as barbarous) on the grounds of expediency, usefulness, or even admitted necessity. Perhaps it is expecting too much to require they should regard approvingly, under any circumstances, what they so unqualifiedly condemn; nevertheless, candour demands a mitigation of their severe denunciations until their consistency shall be more apparent than their sympathy. Of such ob-

* In operations on the brain of living animals it must be difficult, or rather impossible, to remove, or destroy one cerebral organ, without prejudice to others; and hence error, or confusion, in the results. Gall asks, "Where is the anatomist or physiologist who precisely knows all the origins, the whole extent, all the ramifications, all the connections of an organ. You remove the cerebellum, at the same moment you severely injure the medulla oblongata and spinalis; you injure the tuber annulare; you injure the tubercula quadrigemina; consequently your results relate not merely to all these parts, but to all those which communicate with them, either directly or indirectly. You think you have insulated the tubercles; but these tubercles have connection with the corpora olivaria, the medulla oblongata, the cerebellum, the sense of vision, and many convolutions; the thalami optici, the corpora striata, are connected *below* with the crura cerebri, tuber annulare, the medulla oblongata, the pyramids, and the spinal marrow;—*above*, with all the cerebral membranes, all the convolutions, the non-fibrous grey substance of their surface with the different commissures, as the anterior commissure, the great commissure, &c. &c. Thus, there does not exist a cerebral part which we do not know to have numerous connections with other parts. I do not except even the corpora mamillaria, the pineal gland, the infundibulum, &c. *The connections yet unknown* are unquestionably yet more numerous." "Sir Charles Bell has lately imitated Gall in objecting to vivisection as a means of discovery."—Vide Elliotson's translation of Blumenbach.

jectors we have known those " whose house on that aspect was one pane of glass." Some such folk have viewed without heart-breaking a horse-race—a bull bait—a boxing match—a cocking—and a dog fight—nay, have voluntarily beheld a military flogging and an execution! some with indifference, others with pleasure even to participation, but none of which have they spoken of with the reprobation to which they consign the anatomist who, for the highest and most useful purposes, is the instrument of pain to an animal less than is usually apprehended, and the sufferings of which are not augmented by the vague terrors and undefined fears which, it is known, are generally the severest portion of many indispensable and alarm-creating surgical operations.* The worthy persons we allude to also, we believe, ride in cabs when in haste, a contingency which it is on all hands agreed is not conducive to the natural benevolence of the driver, nor to the ease and convenience of the horse; they have but few sorrows for factory children and hand-loom weavers; they eat oysters alive; they hunt the hare, the deer, and the fox; and, with equal consistency and complacency, fish with live bait for perch and pike; none of which acts have the plea of necessity, nor all, the excuse of " lawful pleasure," the last being restricted to its severest signification. Their concern for the subjects of physiological experiments we would not denounce as pseudo-humanity, nor can we admit it to be quite genuine; it is an affair of mixed motives, a sort of compromise between things they love but ought not, and things they love not. We fear that one grave charge could be substantiated against some experiments, namely, an unnecessary frequency of repetition, for *verification*: surely the results of many experiments are sufficiently proved to be uniform and genuine to deserve assent on authority, dispensing with reiterated proof not demanded by scepticism; and which are cruel, because not justified by necessity. That certain poisons are fatal to animal life in very small doses is a fact no longer needing the proof to be exhibited; yet we have seen in chemical lectures a cruel and unnecessary waste of animal life, a cruel and unnecessary infliction of pain, to demonstrate what is not doubtful, nor required to be seen in order to its belief: as that strychnia and hydrocyanic acid are deadly substances.

* Müller says that some animals, rabbits especially, are so frightened by the first steps of experiment, before they have suffered any considerable injury, that the skin has become apparently insensible to pain from cutting and pinching. This must, however, be considered unproved; for there are many examples of the endurance of suffering without the ordinary manifestations of sensibility. Another circumstance may be worth considering; it is highly probable that the effects of terror on animals may somewhat vary from those in man, in whom the imagination plays so conspicuous a part, brutes having no analogous faculty. Fear, alone and indefinite, is less torturing than when it is combined with the uncertainty of ignorance of the evil to come, and which is supplied, and mostly magnified, by the imagination; and it may be that a slighter stimulus would produce proofs of sensibility—as tickling, which we well know excites peculiar sensibility when a ruder contact fails.

If the sanative effects of medicine could be ascertained by their previous exhibition to brutes, and relied on for our guidance in prescribing for man, the immolation of a hecatomb of animals for health's sake would be as justifiable as the slaughter of a herd of oxen for his esurience, and on the same grounds. Unluckily there are but few resemblances between man and most animals, in the operation of drugs on both. The varying and sometimes opposite effects of medicines on horses are well known to veterinarians; and disappointment on the subject might, we think, have been anticipated, as nothing can well be more remote than the analogies on which rested the expectation of identical effects from the same supposed remedies. On horses, opium, mercury, nitrate of potass, sulphate of magnesia, and antimony, are examples. Opium is vastly less striking in its effects as an anodyne and a narcotic: sulphate of magnesia (Epsom salts) is questionably aperient. Tartrite of antimony less striking as a diaphoretic (promoter of perspiration); and as an emetic it is not employed, from the fact of the horse's stomach being anatomically inimical to such an operation. Nitrate of potass (nitre, or saltpetre) is inoperative, or very nearly so, as a diuretic. However, it is to observation more than to physiology we owe our knowledge of the value and effects of medicines: for their use is commonly empirical, though directed by the best informed. That carbonate of iron should in "St. Vitus's dance" (especially when occurring before puberty) be almost a specific; that arsenic should have nearly the same effect on the same disease, when not depending on diseased changes of structure of the brain; that creosote, a newly-discovered essential oil, a product of the destructive distillation of wood, sub-nitrate of bismuth, and hydrocyanic (prussic) acid, should be *all* nearly omnipotent in obstinate vomiting not symptomatic of inflammation of the stomach (*gastritis*) and a few other occasional causes, we owe to observation and experience; and while we remain ignorant of their *mode* of action on the stomach and nervous system, we can hardly look to physiology for lights.

But to physiology we owe infinite obligations for a knowledge, limited as it is, of the brain and nervous system; and here this elevating science bids fair to be suggestive of something we may be able hereafter to accomplish for the treatment of their functional derangements. By *proving* the office and healthy operations of the respective divisions of those organs only can we ascertain, by their disturbance, the *seat* of the disease, which is ever formidable. In hydrophobia, epilepsy, tetanus, and insanity, we have nearly every thing to learn, if it is fated that any thing more is to be accomplished. Already we can with certainty localise some affections, especially when the cause exists near the base of the brain. In like manner, internal injuries inflicted by external violence have sometimes their precise seat indicated by the symptoms; but these advantages are among the benefits conferred by physiology, and their value is beyond calculation. The two most recent additions to this science are the works before us: different, yet alike. Dr. Elliot-

son's title we take to be an assumption, notwithstanding his excuse. In 1815 he translated (anonymously) Professor Blumenbach's *Institutiones Physiologicae*. In 1817 he published a second edition, with his name, and the addition of one hundred and fifty pages of notes. In 1820 he published a third edition, with two hundred pages of notes. In 1824 he published a fourth edition, *from a new edition of the original work*, with three hundred and fifty pages of notes, which notes greatly exceeded the text. The fifth edition is a still farther enlargement and improvement on its predecessors, and brings before the reader very nearly all that is known in the most lucid manner, and expressly calculated for "the general reader; since such works are now read as much out of the profession as by medical men," as they well deserve to be. Dr. Elliotson has thought proper—and we have no quarrel with his judgment on this point—to omit a great deal of Blumenbach's text, not from any demerit, but because the science has advanced beyond the last edition of Blumenbach—the patriarch of physiology. The deficiency is made up by excellent notes, consisting of reference to, and extracts from, every accessible and respectable authority. Now we are at a loss to discover by what reasoning the omission of Blumenbach's and the substitution of fifty others' matter can entitle Dr. E. to call the work "Elliotson's Physiology:" "Everybody's Physiology" were a fitter name. However, he expresses, with great confidence, that he is sure Blumenbach will not object (we have not heard that he did in 1835),* and we have even a less right; yet it may appear to the readers of the work that Dr. E. is rather to be regarded as a profound critic than a professed physiologist; in which *first character he leaves nothing to be wished for* in the way of candour and fitness; albeit he is often self-complacent, sometimes supercilious, and occasionally trenchant: yet these are more allied to the confidence inseparable from competence and courage, than vanity and ill nature. And it should be remembered that his unselfish nature, preferring truth for her own sake, and always perilling his ease where he believes he is her champion, he has sometimes incurred the hostility of ignorance and envy to an extent that might well excuse a more energetic defence of himself than even he makes in the second part of the present work. It must be also remembered that he is a true disciple of Dr. Gall, which is a very different affair from being a "phrenologist," in the received acceptation of that term. That branch of physiology as treated by Gall and defended by Dr. E. is another thing than what is assailed by its opponents and understood by the "bumpists." On the subject in question there is greater misapprehension than on any other with which men, not extremely scientific in their occupations, meddle; and as its propounders have been oftener amateurs than professors, the subject has suffered by the incompetence of the teacher, more in actually misleading than

* Vide preface to the fifth edition, part i, February, 1835. The second part is recently out, 1833.

from deficient zeal. This could hardly be otherwise, for phrenology is not an independent science; it is an integer in physiology, and cannot be dealt with by ordinary minds with ordinary attainments. Indeed, such individuals are as little capable of thorough conversion *to*, as they are impercipient of arguments militating *against*, the doctrines.

We believe that Phrenology cannot, for those reasons, ever be popular; in other words, it must remain an affair of *faith* to all who bring not the talent, learning, and great observation, essential to *conviction*. As it is expounded by the majority of its teachers, it is the crude, fanciful, unsatisfying affair, that its equally ignorant objectors partially succeed in representing it, many of them, honestly, knowing no more of it than is described by the vulgar and incapable, who, adding enthusiasm to ignorance, bring down discredit on that, which, if understood, deserves all honour, A wide space sunders Müller from Elliotson; the last is a worshipping disciple of Gall; and what is vastly more rare than admiration of that great man, perfectly understands the doctrines of which Gall is the apostle: on the other hand, Müller, after making admissions the force and effect of which he seems not to have calculated, winds up by concurring with the opinion of a French physiologist, every way inferior to himself, (Majendie) that cranioscopy or phrenology may be reckoned with astrology and alchemy! which opinion is tantamount to absolute proof that Müller *never read* Gall, which is equivalent to proving, that, *ex necessitate*, he cannot by any possibility understand phrenology, although he presumes to pronounce *ex cathedra* against it. Nearly all the normal and also the morbid phenomena of the nervous system, were known to the ancients; but it was left to others, and of this day, to claim the merit of more correct knowledge going beyond that, which is merely observed without being understood. To the known functions of the brain, spinal cord, and ganglionic system, is now, by some, added another, long since obscurely recognised as something allied to "sympathy," and now baptised by one of the claimants to originality, as the "reflex function" of the spinal cord, a term, it is insisted, about as original as the discovery, both of which, it is asserted, with much confirming testimony, were not unknown to Prochaska in the last century. Of living candidates for the credit of a "discoverer," Müller is one, and that he is a "discoverer" we have no doubt.

To the existence of the reflex function as a previously unknown and not understood function, Dr. Elliotson is opposed, and with candour and ability, makes a strong opposition to the novel claims of recent discovery and superior information. As the advocates of the novelty of the theory admit that more remains to be done, e.g. the discovery of special nerves, (called by Dr. Hall "excito-motory") for the performance of the reflex function, it is hard to come to a conclusion unalterable: while it ought to be mentioned that an excellent anatomist (Mr. Grain-

ger) offers good evidence of his having nearly completed the discovery, which, when fully completed, shall leave the thing no longer disputable. None of the opponents of the "reflex function" doctrines equal Dr. Elliotson in argument and ingeniousness, nor is their hostility so cogent; but we confess, he fails to satisfy us that he is right on an important point, distinguishing him from others, and of those, most conspicuously, Müller.* In examining this subject, a striking difference is apparent in the modes of reasoning and research of Müller and Elliotson; a difference which indeed often gives a preponderating advantage to the distinguished German; he leaves no doubt on the mind, that his belief on any given point, is the result of reasoning on what he actually saw and experimented; phrenology alone excepted. Too often a great good has a proportionate alloy or qualification arising out of human fallibility, over estimating in its pride its seeming triumphs in the search after truth, sometimes causing too large a reliance on what are called facts: it is not necessary to give examples in proof, that generally, even the most indifferent logicians are oftener to be relied on in their ratiocination, than in their facts; a circumstance not necessarily invalidating their honesty. In experiments, the chief object sought, and sought with the greatest avidity, is that which adds confirmation to a *foregone* conclusion, notwithstanding, it is sometimes coupled with other consequences, which, if not neutralizing, at least, so qualify the main one, as to abate considerably its value: with the sanguine, and the short-sighted, these deductions are not duly allowed for, and a common, vitiating effect, is, "proving too much." The sources of error are innumerable where the senses are concerned—they are notoriously more easily imposed on than the judgments, and the differences in men's *sentient* perceptions are greater, than in their *mental* percipience of disparity: add to this the readiness with which men are persuaded to believe that which they wish to be true. To what but defective observation of facts can we ascribe such things as follow? Wilson Philip contends that division of the pneumo-gastric nerve suppresses secretion of the gastric juice, and arrests digestion: on the other hand, Leuret and Lassaigne maintain, that digestion proceeds as before, after six inches of *each* nerve

* Dr. Elliotson, without foreseeing the consequences, almost admits the existence of the excito-motory functions, when he says, "The functions of the lungs and stomach could hardly proceed without sensation" (page 437). He could scarcely mean, by "sensation," in the sense used, "common sensation," as *consciousness* of those organs exists only when they are diseased or disordered; but they have a peculiar excitability, which Müller and Hall show is *proper* to them, and the appeal to which, by the "excito-motory" portion of the nervous system, leads to the performance of actions proper to them. *Consciousness* of sensation would prove disease in those organs: and when organs respond to the stimuli peculiar to them, and essential to excite their proper function, the impression is not recognized by the brain, as that organ is conscious of pain produced by injury, or is aware of external existences.

is removed! The conclusions are opposite of Drs. Wilson Philip and Brachet; the first, *obviated the ill effects of the removal of a piece of the pneumo-gastric nerve, on the lungs and stomach, by supplying these organs with the galvanic influence*; and hence, among other notions, inferred that the nervous and galvanic fluids are the same; but, Dr. Brachet produced the *same* results by merely *irritating* the divided nerve going to the stomach.

Physiology teems with similar contradictions; and anatomy, which from its more material and apparent nature, would seem to be by right exempt from such uncertainty, furnishes similar examples, though not to the same amount! *e.g.* the "respiratory tract" of Sir Charles Bell is sometimes wanting, but its alleged function never. And it was but recently that the anatomy of the liver came before us, demonstrated as widely different as possible from any former description and preconceived notion of it! The microscopic investigations of Ehrenberg would prove that the nerves are *tubular*: Raspail, on the contrary, asserts that they are aggregations of "*solid cylinders, each invested, like muscular fibrils, with a fine membrane, and the whole with a common covering to form a trunk. He declares that no tube exists in them, as many have asserted.*" We may observe that Müller's views agree with Ehrenberg's; confirmed by *observation*, Müller says that the experiments of Ure and Wilson Philip have given rise to misconceptions—alluding to the now refuted hypothesis before corrected, that the electric and nervous fluids are similar, instead of being, as they certainly are, totally different. He also, with much graceful admiration, assigns to Sir C. Bell the merit of *first* suggesting the division of the roots of the spinal nerves into *motor* and *sentient*; the first coming from the anterior, the second from the posterior, columns of the cord. Bell afterwards proved this to be the case as relates to the anterior or motor roots; but left unsettled (to the satisfaction of some) whether he was *convinced* of the uses of the posterior roots in reference to sensation: a point which Magendie did certainly afterwards establish, and, if Dr. Elliotson can be credited, without access to a privately-circulated pamphlet by Sir C. Bell many years before (1811). Very few will submit to the confident assertion—a mere and worthless assertion—of Dr. Elliotson, that Magendie did not so obtain the elementary materials of what he stoutly contends is *a* discovery of his own. We fear we must retract some portion of the generally well-deserved praise we so warmly accorded to Dr. Elliotson at the beginning of this article, for his tone of expression when speaking of Sir C. Bell is unworthy of both; and unless Dr. E. shall make a discovery of equivalent value, great as is his acknowledged merit, his immortality must be postponed: in the mean time Sir C. Bell may be said to have—exclusive of other great merits—by this discovery alone, deserved and achieved a philosophical apotheosis. These two specimens will suffice to acquaint the reader with the startling disagreements prevailing in the regions of

science, where all should be harmony and agreement; and also prove that essential to the establishment of every truth, is the passage of a long period of time.

We hope it will not be deemed inconsistent with the commendation bestowed on Dr. E.'s work, that while acknowledging its full value, we augur that Müller's will be more frequently confided in *as an authority*: while Dr. E.'s compilation, being rendered more attractive by the copiousness and variety of its materials, will insure more extensive perusal, and may probably have the good fortune to inspire its readers with a taste for its subject,—where genius leads, the world will follow—Müller has beyond doubt established for himself claims to be so considered, and the confidence which he clearly has in himself will inevitably be shared by his readers. His book, then, holds a place of advantage over Elliotson's, which savours more of the character of an arbitrator or umpire, than of a pioneer who has broke and cleared the ground for himself. In these expressions it is very far from our intention to disparage its great merits: but it is certain that confidence is more likely to follow originality than imitation; and we make no doubt that every article in the physiological creed of Müller is the result of proofs with which all must be satisfied; and, where doubt was unavoidable, that he repeated for himself the experiments of others, and satisfied himself by this mode of verification before he adopted a single particular. We cannot deny the probability that he sometimes shares the fate of his predecessors in being deceived by appearances, and deduces conclusions which his future observation, or that of others, may correct; still he is not one likely to remain satisfied after the suspicion of fallacy: and it may be predicated of his candour that he would be the first to recant an error, whether of observation or of opinion.

We expect that a long time must elapse ere another system of physiology will supersede Müller's; and when that occurs, it will certainly owe its precedence to the added discovery and confirmation of time, rather than the substitution of other views for those, many of which this book will help to establish. He is not merely a correct observer—demanding, as we have elsewhere shown, qualities so rarely found—but he reasons like one whose judgment could not be betrayed by a sophism: it is severely inductive. His good fortune is conspicuous in being translated by one who has rendered great—we had almost said complete—justice to his original; and the work, consequently, doth not read like a translation. The translation is worthy of the original; both are excellent, and will, doubtless, give an impulse to the study of a science which hath rendered great service to humanity, and, if prosecuted with zeal, promises to lay it under still greater obligations. Last, but not least, it will—at least, the hope is reasonable—stimulate our countrymen to an emulation of their continental fellows, and no longer leave England subject to the reproach of bringing up the rear in this one of the medical sciences, instead of,

as in most others, leading the van. That such is desirable on other accounts, will not be questioned by those who shall be told that it is but very lately physiology forms more than incidentally a part of the medical pupil's education: all the physiology he formerly got,—save what he resolutely sought and obtained for himself—was the miserable modicum forming a very small and uncertain portion of his anatomical lectures! Within the last few years the scene has wholly changed; and not only is it more specially insisted on and cultivated, but its attractions solicit the attention of students, many of whom possess an amount of this knowledge that would have made a professor thirty years ago! It enjoys the enviable advantage of receiving much reflected light, and invokes the successful aid of nearly every other science, or some of their branches, especially chemistry, which itself may be considered as a science almost new, if we contrast the wretched, piebald, empirical cookery, that was honoured by that name not very long since. Again, to France and Germany we owe an unpayable debt of gratitude and utility, for redeeming the state of things just alluded to, and elevating chemistry into the glorious science it now is, meliorating the condition of man in all countries, and in every conceivable way adding to his knowledge, enlarging his intellects, subduing to his will and for his use the most “gnarled and unwedgeable” materials in nature, heretofore wasted or neglected as worthless or impracticable: in fine, conferring advantages which are incalculable by means that are infinite.

Microscopic Illustrations of Living Objects, their Natural History, &c., &c. with researches concerning the most eligible methods of constructing Microscopes, and instructions for using them, by C. R. Goring, M.D. a new edition, emended and enlarged; by Andrew Pritchard, M.R.S. 8vo, London, 1838, pp. 248, with many cuts and coloured figures.

The “Microscopic Illustrations” were first published in 1829; the work is now reproduced in an amended form, with the addition of subsequent discoveries in the construction and uses of the microscope. The present edition opens with introductory remarks on the application of this wonderful instrument to the sciences, and an account of its recent improvements. Then follow three descriptive chapters on the larva and pupa of a straw-coloured plumed gnat, the *Corethra plumicornis* of Stephens; on the larva and chrysalis of a day-fly, the *Ephemera marginata* of Stephens; and on the larva of a species of British hydrophilus, the *H. caraboides* of entomolo-

gists. These three subjects are admirably illustrated with exquisite microscopic figures, plain and coloured, and altogether they constitute a most beautiful and instructive study for the lovers of natural history. One chapter is devoted to an explication of the terms employed in microscopic science, including a description of the vertical microscope; and, in another chapter, the achromatic telescope, with its apparatus and the mode of using it, is perspicuously explained by descriptive and graphic illustrations. Among his practical remarks on microscopes for viewing and drawing aquatic larvæ, Dr. Goring introduces the important observations,—*that water-insects do not appear to require air to support their existence, and that Thames-water is utterly poisonous to nearly the whole race of aquatic insects.* In a particular discussion, he endeavours to answer the inquiry, “Whether there is a best possible way of constructing the stand or mounting of Microscopes, the specific purposes to which they are applied being first determined; and, from the reasons and facts adduced by him, he deduces the conclusion, “that the *principles* at least of the best possible construction of the mechanical part of microscopes, may be defined.” To this, he adds a proposition to supplant the term *compound microscope*, by the word **ENGISCOPE**, formed of *ἔγγυς*, *nigh*, and *σκοπία*, *to view*, which well expresses an instrument for closely observing near objects. The doctor trusts that his designation for the compound microscope will be adopted as lawful and orthodox; and, entertaining the same impression, Mr. Pritchard gives a minute description of the instrument, under the name of “*Dr. Goring’s Operative Aplanatic Engiscope*,” and he exhibits all its parts distinctly on a plate containing twenty-five representative figures. In the last chapter, Dr. G. furnishes the reader with very full and clear directions regarding the manner of observing with, and managing, his new instrument, which is denominated “*Aplanatic*” for the reason that he considers it “free from both kinds of aberration, or devoid of all errors.” An appendix to the treatise consists of four appropriate articles—on the optical phenomena of certain crystals, and further observations on the same, by H. F. Talbot, F.R.S.—the exordium to the first edition of this work, by Dr. Goring,—and an account of Swammerdam’s method of dissecting and preparing objects for the microscope. Such, then, is an analytical view of the “*Microscopical Illustrations*,” which, in all that concerns the engravings and their colouring, the descriptions and their philosophy, do constitute a scientific monograph pre-eminently remarkable for the excellence of its arrangements, the perfections of its graphic representations, and the amusing as well as instructive tendency of its principles.

An Historical View of the Nature and Results of Vaccination, as unfolded in Dr. Baron's "Life of Jenner," by Vigornensis; 12mo, Stratford, Worcester; Rivington, London.

VIGORNENSIS has here indited an extremely sensible, judicious, and instructive review of vaccination and its beneficial results. His monograph is finely characterized by the dignified elegance of a gentleman, the politeness and erudition of a philosopher, the energetic and glowing beneficence of a philanthropist. Every well-wisher of mankind will cordially join in a sincere recommendation of the book, as a means most admirably calculated to moderate or remove the prejudices that may anywhere exist against a salutary process, whereby incalculable advantages might be conferred on every human family, through successive ages, to the end of time.

OUTLINES OF PERIODICAL LITERATURE,
RELATING TO THE NATURAL SCIENCES & PHILOSOPHY.

(Continued from page 173 of the present volume.)

The Magazine of Natural History, and Journal of Zoology, Botany, Mineralogy, Geology, and Meteorology, conducted by Edward Charlesworth, F.G.S. 8vo, London, 1838.

No. XXII, OCTOBER, 1838.—Dr. Drummond opens this number of the Magazine with the first of a series of notices of *Irish Entozoa*; and, in this, he adopts Rudolphi's nomenclature and classification. The doctor's first subject is the Echinorhynchus *acus*, an intestinal worm, which is particularly frequent in fishes of the Cod tribe. He characterizes the animal, both ordinarily and specifically; gives six figures, in illustration of its ova and other parts; defines its ascertained habitates; and, with a train of ingenious experimental descriptions of the economy and physiology of this parasite, he furnishes a truly valuable contribution to the Irish entozoology. From accurate and repeated observations with the microscope, he concludes that the echinorhynchous ova are expelled through a caudal pore; altogether, his article well merits the attention of naturalists. Mr. Skaife continues his essay on the Ornithology of Blackburn; and, under the order SCANSORES, four species—*Picus viridis*, the green woodpecker; *P. major*, the greater spotted woodpecker; *Yunx torquilla*, the wryneck; and *Cuculus canorus*, the cuckoo—are set down for north Lancashireans. Among the GALLINÆ, stand *Lagopus britannicus*, the red grouse; *Perdix cinerea*, the common or grey partridge; *Coturnix dactylisonans*, the common quail; *Columba palumbus*, the ring-dove; and *Phasianus colchicus*, the common pheasant: in foot-notes Mr. S. adduces his reasons for preferring *Britannicus* as the specific term for red grouse; and he states that the golden pheasant has been naturalized in a gentleman's preserves near Preston, where the breed multiplies with great rapidity. Thirty species of GRALLÆ are then enumerated. These are,—*Charadrius pluvialis*, the golden plover; *C. morinellus*, the dotterel; *C. hiaticula*, the ringed dotterel; *Squatarola cinerea*, the grey plover; *Vanellus cristatus*, the lapwing; *Hæmatopus ostralegus*, the oyster-catcher; *Ardea cinerea*, the common heron; *Botaurus stellaris*, the bittern; *Numenius arquata*, the curlew; *N. phæopus*, the whimbrel; *Scolopax rusticola*, the woodcock; *S. major*, the solitary snipe; *S. gallinago*, the common snipe; *S. gallinula*, the jack snipe; *Limosa rufa*, the bar-tailed godwit; *Tringa canutus*, the knot; *T. subarquata*, the pygmy curlew; *T. alpina*, the dunlin or purr; *T. minuta*, the little stint; *Arenaria calidris*, the sanderling; *Phalaropus lobatus*, the grey phalarope; *Streptopelia interpres*, the turnstone; *Totanus calidris*, the redshank; *T. ochropus*, the green sandpiper; *Rallus aquaticus*, the water rail; *Crex pratensis*, the land rail; *C. porzana*, the spotted rail; *Gallinula chloropus*, the water hen; *Fulica atra*, the coot. The birds of this order are distributed into four families—the *Pressi-*

rostris, *Cultirostris*, *Longirostris*, and *Macroactyla*; and, with reference to a lancastrian specimen of the *Scolopax sabini*, you have an interesting footnote. Mr. S. distinguishes fifty species of the PALMPEDES, arranged under the four families—*Brachyptera*, *Longipennata*, *Totipalmata*, and *Lamellirostris*—and his individuals are, *Podiceps cristatus*, the crested grebe; *P. rubricollis*, the red-necked grebe; *P. minor*, the little grebe; *Colymbus glacialis*, the northern diver; *C. arcticus*, the black-throated diver; *C. septentrionalis*, the red-throated diver; *Uria troile*, the foolish guillemot; *Mergula melanoleucus*, the little auk; *Fraterculo arctica*, the puffin; *Alea torda*, the razor-billed auk, which is the same bird as the black-billed; *Thalassidroma pelagica*, the stormy petrel; *T. bullochii*, the fork-tailed petrel; *Lestris richardsonii*, the black-toed gull; *L. parasiticus*, the arctic gull; *L. pomarinus*, the pomarine gull; *Rissa cinerea*, the kittiwake; *Larus canus*, the common gull; *L. argentatus*, the herring gull; *L. fuscus*, the lesser black-backed gull; *L. marinus*, the greater black-backed gull; *L. glaucus*, the glaucous gull; *Chroicocephalus ridibundus*, the black-headed and red-legged gull; *Sterna anglica*, the gull-billed tern; *S. cantiaea*, the Sandwich tern; *S. arctica*, the arctic tern; *S. marina*, the great or common tern; *S. minuta*, the little tern; *S. nigra*, the black tern; *Phalacrocorax carbo*, the cormorant; *Sula bassana*, the gannet; *Mergus merganser*, the gosander; *M. serrator*, the red-breasted merganser; *M. albellus*, the smew; *Fuligula ferina*, the pochard; *F. cristata*, the tufted duck; *F. gesneri*, the scaup duck; *Oidemia nigra*, the scoter; *O. fusca*, the great black or velvet duck; *Clangula chrysophthalmos*, the golden eye; *Mareca penelope*, the widgeon; *Querquedula crecca*, the teal; *Chaliodus strepera*, the gadwell; *Rhychaspis clypeata*, the shoveller; *Anas boschas*, the wild duck; *Tadorna betonii*, the shieldrake; *Anser segetum*, the bean goose; *A. palustris*, the wild goose; *Bernicula leucopsis*, the barnacle goose; *B. brenta*, the brent goose; *Cygnus ferus*, the wild swan. To the Lancashire Fauna, this list of Mr. Skaife's forms a valuable contribution. For article 111, you have an essay on the peculiar insulation of the Nervous currents in the Chameleon, with observations on the change of colour in that creature, by Dr. Weissenborn. Among a diversity of remarkable inductions, this eminent naturalist arrives at the following—that one lateral half of the animal is often of a colour decidedly different from that of the other; that the nervous currents in one lateral half of the chameleon are going on independently of those in the other, and that this animal has two lateral centres of perception, sensation, and motion, besides the common one wherein the faculty of concentration resides; that, notwithstanding the strictly symmetrical structure of the creature, as to its two lateral halves, its eyes move independently of each other, and convey different impressions to their respective centres of perception; that, when it is agitated, its movements appear like those of two animals glued together, each half wishing to move its own way, without any symmetry of action; that the creature may be asleep on one side, and awake on the other; that its changes of colour depend altogether on the degree in which the nervous system is stimulated or inactive; that a superficial whitish pigment in the cutaneous system always determines the animal's general colour when *undisturbed*, *relaxed* or *torpid*, whereas the other hues develop themselves according to the degree in which a dark cutaneous pigment is excited; that the colour of the chameleon is of a pale almost uniform kind, during sleep, when it is wrapped closely in flannel or wool and left in a quiet

state, when it has been exposed for a considerable time to intense sun-light, and when it is dead; and that its pale colour is exchanged for other hues when the creature is suddenly exposed to the sun's rays, when its body has been heated to $90\frac{1}{2}^{\circ}$ F. for then its vital powers and functions are most energetic, and its colours most strikingly contrasted, and when it is handled or alarmed or surprised or thrown into water or exposed to rain. This paper of Dr. W.'s prefers extraordinary claims on the consideration of physiologists. Mr. Morris illustrates his observations on the deposits containing Carnivora and other Mammalia in the valley of the Thames, with a good figure of a bear's fossil tooth, and he describes the localities and their stratification where "mammalian remains" have been exhumed: these belonged to the elephant, rhinoceros, hippopotamus, horse, deer, Irish elk, vole, bear, hyæna, and perhaps the lion: his list of shells occurring in the mammaliferous deposits contains eight bivalves, thirty univalves, and one of the crustacea: they are scarcely ever accompanied with any trace of vegetable remains. As a suitable addition to the preceding article, Mr. Sowerby institutes a comparison of *Cyrena*, *Valvata*, and *Unio*, found at Grays, with recent species, and he figures a *Valvata* and the valves of a *Unio*, both in the fossil state, as illustrations. Next in order, come the recent researches in fossil zoology of Mr. Von Meyer, in an English version. They relate to the *Pemphix sueri*, *P. alberti*, *Limulus priscus*, *L. agnotus*, *Erion hackmanni*, *E. schuberti*, *E. rhemani*, *Glyphea grandis*, *G. reglegani*, *G. ventrosa*, *G. munteria*, *G. dressieri*, *G. pustulosa*, *G. mandelslohi*, *Prosophon simplex*, *P. helies*, *Plateosaurus* a new gigantic saurian, *Reteosaurus* with its hermetically closed marrow-tubes, *Mastodonosaurus*, *Chelonis gigantea*, *C. knorri*, *Plesiosaurus*, *Nithosaurus*, *Drucosaurus*, *Nothosaurus goldfusii*, *Condriosaurus elevatus*, *Charitosaurus ischidii*, *Pterodactylus lavateri*, *P. macronyx*, and *Machinosaurus hugii*, with its teeth of a blunted conical form, dense and striped. Articles VI and VII consist of replies and explanations which are not anonymous, and these are succeeded by an instructive practical communication, wherein Mr. Cooper gives the details of an excursion to Woking, made in the summer of the year 1838, by the members of the Botanical Society of London, with observations on varieties of plants; he notes a variety of the *Orchis morio*, having beautifully delicate fawn-coloured flowers, and concludes that it is exceedingly rare. Six concise Reviews introduce the Short Communications, and these have the titles—Mr. Eyton's arrangement of the gulls; Dr. Weissenborn on the *Gypaëtus barbatus* of immense size, shot during the last autumn, and probably the destroyer of two children; flight of pigeons at the rate of eight hundred and sixty feet in a minute, and to the extent of three hundred and twenty geographical miles; jealousy of a dog; new hot spring at Carlsbad containing both bromine and iodine; hibernation of the marmot; extract of a letter from Java, on collecting the nests of *Hirundo esculenta*; and a note on the lake of Arendsee, which throws out yellow amber, and petrifications of wood and other substances.

XXIII.—This, for November, commences with a second portion of Dr. Drummond's notices of Irish Entozoa; and, on the present occasion, he treats of the *Tetrarhynchus grossus*, *T. solidus*, a species newly described by the doctor, and the *Bothriocephalus punctatus*, which possesses four *bothria* instead of two only, as is generally supposed: the descriptions are clear and

full: they are accompanied with eleven illustrative figures. Mr. Garner begins a memoir on the anatomy of the Lamellibranchiate Conchiferous animals: this article appears favourable to Mr. G.'s talent for observation and his acquaintance with the philosophy of natural history. Mr. Von Meyer's recent researches in Fossil Zoology relate, in continuation, to the *Ascotus longimanus*, *Chalydra murchisonii*, *Lagomys æningensis*, *Palacotherium ichingii*, *Rhinoceros incisivus*, *tichorhinus*, and *goldfusti*, *Mastodon angustidens* and *turicense*, *Chalicomys jugerii* and *minutus*, *Oxygotherium escheri*, *Microtherium rengen*, *Emys heischeri*, *Cheropotamus meissoreri*, *Dinotherium bavaricum*, and *giganteum*, *Manutus studeri*, *Harpagon maximus* and the *Testudo antiqua*: in a projected work on Fossil Zoology, the author illustrates these and his other "examinations" with figures executed on a new plan, allowing of their being measured without the compass. You now arrive at No. III of Mr. Blyth's analytic descriptions of the groups of birds composing the order *Streptitres*, and here he treats of the *Buceroides* or hornbill and hoopœ tribes. The first of these "tribal families" he denominates the *Appendirostres*, from their having beaks furnished with an appendage; the other, he names *Arculirostres*, from their bills being slightly arcuated. Mr. B.'s remarks are evidently deduced from close and extensive observation, and they communicate much useful knowledge concerning the physiology and habits of the buceroidal birds. Mr. Westwood illustrates his curious experimental notes on the natural history of *Myrmeleon formicarium*, the ant lion, with a figure, which represents the larva of this ingenious creature working its way into sand. In a communication on the artificial arrangement of some of the more extensive natural orders of British plants, Mr. Bird exhibits "tabular analyses of genera, in which many of the more obscure features are disregarded, and the name of the genus arrived at without having recourse to minute dissection or indefinite characters:" experience will determine the practicability of Mr. Bird's scheme; it possesses the advantage of being simple, and holds out the fairest prospects of being convenient and useful for facilitating the investigations of young botanists. Mr. Wright addresses observations on a rare British dolphin, to the editor: this was the *Delphinus tursio*, shot off Torquay in September of the present year: minute descriptions of the stuffed specimen convey good representations of its size and relative proportions. A few British plants are noted by Mr. Luxford: he speaks of the *Teesdalia nudicaulis*, *Lycopodium selago*, *L. inundatum*, *Dianthus caryophyllus*, *Phyteuma orbiculare*, *Campanula glomerata*, *Parnassia palustris*, *Statice spathulata*, *Crithmum maritimum*, *Ajuga chamæpelys*, *Althæa hirsuta*, *Arenaria peploides*, *A. marina*, *A. serpyllifolia*, *A. trinervis*, *A. ciliata*, *A. verna*, *A. rubella*, *Orchis maculata*, *O. pyramidalis*, *O. fusca*, *O. latifolia*, *Ophrys apifera*, *Liparis læselii*, *Gymnadenia conopsea*, *Silene anglica*, *Centaurea solstitialis*, *Calluna vulgaris*, *Erica tetralix*, *Alchemilla alpina*, *Potentilla argentea*. Mr. L.'s notes have some value, but they display little appearance of being imparted in a generous spirit. Dr. Weissenborn "returns once more to the subject of Spontaneous Generation," in a belligerent article, and this is followed by another of the same kind, about "an undescribable muscle in the eyes of fishes." After two reviews and two brief notices of works published in periodical parts, the short communications close the *November*; and these concern the *pie'd fly-catcher*, shot at Mount Edgecumbe; the *northern diver*, killed near Plymouth; and the *secale cornutum*,

with the laws lately instituted in Germany for the prevention of its poisonous effects.

Annals of Natural History; or Magazine of Zoology, Botany, and Geology, conducted by Sir W. Jardine, Bart. P. J. Selby, Esq. Dr. Johnston, Sir W. J. Hooker, and Richard Taylor, F.L.S. 8vo, London, 1838, with graphic illustrations.

NO. VIII, OCTOBER.—Observations on *Otaria falklandica*, the fur-seal of commerce, are made the subject of a very curious and important article from the pen of Mr. R. Hamilton. He premises a few notices on the history of the South Sea seal trade, on the furs of seals, and on the particular animal which yields the fur seal skin of the traders. Next, he characterizes this creature and adjoins the measurements of two specimens; and then, with some particulars regarding its habits, he gives a natural history of the Falkland otary sufficiently well calculated to excite the attention alike of merchants and philosophers. His observations are illustrated by an excellent figure. In a lively sketch, Mr. Forster shows distinctly that the *Ononis antiquorum* of Linnæus is the common *Restharrow* which so beautifully adorns our heaths. Mr. Fries separates the genus *Syngnathus* into two sub-divisions, to which he applies their Swedish provincial names—*Tangsnallor*, the marsupial pipe-fish, and *Hafsnalar*, the ophidial pipe-fish: he next enumerates eight general peculiarities of the fishes, and then distinguishes the three native Swedish species, *Syngnathus æquoreus*, the æquoreal pipe-fish; *S. ephidion*, the common pipe-fish; and *S. lumbriciformis*, the little pipe-fish; by their proper zoological characters. Mr. Bentham contributes an enumeration of the plants collected in British Guiana by Mr. Schomburgk, the indefatigable botanical traveller. His list comprises thirty-six species, including some belonging to a French collection. Under the tribe VERNONIACEÆ, he specifies *Sparganophorus vaillantii*, *Vernonia odoratissima*, *V. scorpioides*, *V. tricholepis* and *microcephala*, *Centratherum muticum*, *Elephantopus carolinianus*, *Elephantosis angustifolia*, *Trichospira menthoides*, and *Pectis elongata*.—Eleven species are EUPATORIACEÆ; namely, *Oöclinium villosum*, *O. clavatum*, *Eupatorium subvelutinum*, *E. conyzoides*, *E. subobtusum*, *E. ixodes*, *Mikania racemulosa*, *M. hookeriana*, *M. denticulata*, *M. convolvulacea*, and *M. parkeriana*. The tribe ASTEROIDEÆ has belonging to it, *Baccharis leptcephala*, and *Eclipta erecta*. There are fourteen SENECTIONIDEÆ, being *Riencourtia glomerata*, *Latreillea glabrata*, *Clibadium asperum*, *C. erosum*, *Unxia camphorata*, *U. hirsuta*, *Acanthospermum xanthoides*, *Wedelia scaberrima*, *W. discoidea*, *Wullfia platyglossa*, *Bidens bipinnata*, *Cosmos caudatus*, *Schomburgkia** *cal-*

* “Mr. Robert Schomburgk was, in the year 1834, appointed by the Royal Geographical Society to command an expedition into the interior of British Guiana, with permission at the same time to make collections, on his own account, in the various branches of natural history, one set being deposited in the British Museum. Having procured a certain number of subscribers to the dried plants which he should collect, it was further arranged that Mr. S. should make them up in sets, and forward them to Mr. Bentham for transmission to the subscribers, and that each species should be marked with correspond-

coides, *Gnaphalium americanum*. In a continuation of Drs. Wight and Arnot's illustrations of Indian botany, the *Acalypha ciliata* is largely characterized and beautifully figured. Mr. Haliday particularizes the new British insects indicated in Mr. Curtis's "Guide." Among these are two *coleopters*—the *Calanthus nubigena* and *Omaseus tetricus*. The *hymenopters* are forty-nine in number—*Ichneumon phaleratus*, *Tryphon hamosternus*, *T. curtisii*, *T. aurifluus*, *T. phæorrhæus*, *Exochus antiquus*, *E. lictor*, *E. pectoralis*, *E. talpa*, *Periope auscultator*, *Cryptus atricilla*, *C. fulgurans*, *C. olerum*, *C. sylvarum*, *C. complanatus*, *C. arenarius*, *C. fulvicornis*, *C. cruentatus*, *C. varius*, *C. prætor*, *C. comes*, *C. socius*, *C. paganus*, *Pimpla senator*, *P. phænica*, *P. madida*, *P. degener*, *Bassus serricornis*, *B. laricis*, *Porizon linguarius*, *Atractodes incessor*, *A. di-næus*, *A. scrutator*, *A. vestalis*, *A. gravidus*, *A. albo-vinctus*, *A. arator*, *A. salicis*, *B. exilis*, *A. croceicornis*, *A. bicolor*, *A. piceicornis*, *A. fumatus*, *A. cultellator*, *A. citator*, *A. properator*, *Lampronota fracticornis*, *L. erenicornis*, and *L. denticornis*. Mr. H. proposes to indicate the British species in the *Cynipidæ*, *Proctotrupidæ*, *Diapriidæ*, and *Ceraphronidæ*, in a separate memoir on those families. Professor Ehrenberg's communication, respecting fossil and recent *Infusoria*, is accompanied with three ideal figures of the *Loxodes bursaria*, in various states of the extension of the alimentary canal. In an additional portion of his specimen of the botany of the New Zealand islands, Mr. Cunningham describes the characters and habitates of *Scorzonera scapigera*, *Sonchus oleraceus*, *Picris hieracioides*, *P. attenuata*, *Shawia paniculata*, *Solidago arborescens*, *Lagenophora fosteri*, *L. lanata*, *Aster helosericeus*, *A. coriaceus*, *Haxtonia furfuracea*, *Vittaclinia australis*, *Bidens pilosa*, *Cotula coronopifolia*, *Myriogyne minuta*, *Soliva tenella*, *Craspedia uniflora*, *Cassinia leptophylla*, *Ozothamnus pinifolia*, *Helichrysum bellidioides*, *Gnaphalium luteo-album*, *G. simplex*, *G. lanatum*, *G. involucratum*, *G. kerriense*, *G. trinerve*, *Arnica operina*, *Senecio lautus*, *S. australis*, *S. neglectus*, *S. argutus*, *S. quadridentata*, *S. hispidulus*, *Brachyglottis repanda*, *B. rotundifolia*, and *B. rani*, which makes the 465th article in Mr. C.'s curious and interesting catalogue. Four "bibliographical notices" bring us to the "proceedings of learned societies." At the Edinburgh "Botanical," papers were read by Mr. Forbes on the *Primulæ*, where he contends that there are only two species, the *P. acaulis* and *P. veris*, the *P. elatior* being "not only not a hybrid, but a non-existence:" by Professor Christison on the preservation of fruits and botanical specimens in the moist state; and, after numerous experiments made for a series of years, he concludes that no fluid preserves both the consistence and colour of fruits, leaves, and flowers, so well as a concentrated solution of common salt; by Mr. Macaulay on the influence of vegetation on the composition of the atmosphere, evincing experimentally that different natural families produce such effects in different degrees: by Mr. Carpenter, containing a general view of the function of reproduction in vegetables, and showing that the reproductive system can be traced with increasing complexity, but without alteration of its essential characters, from the lowest cryptogamic tribe to the

ing numbers in the several sets, with a view to identifying them when published." With a kind and just regard for Mr. S.'s interests, as his losses have been very severe, owing chiefly to repeated attacks of fever, Mr. B. states that several sets of five hundred each remain undisposed of; and we cordially join with him in recommending them to the favourable consideration of naturalists.

most perfectly organized flowering plants: and by Mr. Brand on the proper mode of arranging the Society's Herbarium and forming a catalogue for reference; his scheme is most ingenious, and comprises objects and principles which met with general approbation. At the "Zoological," a new species of Perameles was exhibited by Mr. Gray, who proposed to name it the *P. gunnii*, in honour of its discoverer. In a letter from Captain Harris at the Cape, he relates his discovery of a new species of antelope: it is denominated *Aigocerus niger*, the sable antelope, and its measurements and characters are described. Mr. Ogilby characterized the *Macroscelides alexandri*, *M. melanotis*, *Chrysochloris damarensis*, *Bathyergus damarensis*, and *Graphiurus elegans*, as new mammalians, and then distinguished certain peculiarities in the structure of the hand, in a living Galaga: it is a new species, and he wished it to be called the *Otolocnus garnettii*, in honour of the gentleman who enabled him to make the description. Mr. Owen's outline of the comparative anatomy and zoological relations of the Nubian Giraffe, founded on dissections of one female and two males, is an elaborate, perspicuous, and exceedingly instructive document. Mr. Martin exhibited an "insectivorous animal" to the society: he established a new genus for its reception, and characterized it under the generic appellation of *Echinops*, with the specific title of *E. telfairi* in memory of a lamented and zealous corresponding member. Mr. M.'s characterology seems comprehensive and accurate. *Sokinah* is this creature's Malabar name. A new species of swan was shown by Mr. Yarrell, who denominated it *Cygnus immutabilis*, with reference to the unchangeable colour of its plumage. A list is given of the communications laid before the section of zoology and botany at the last meeting of the British Association, and some of these, or authentic extracts, are promised to appear in future numbers of the Annals. The miscellanies relate to two magnificent works on the Orchidaceous plants; to collections of Scottish and American mosses; to the *Panopæa australis*, its internal and external organization; to the *Odyneri*, their metamorphoses and industry; to the *Lestris parasiticus*, shot in the county of Durham; to the occurrence of copper in plants; and to the *Falco islandicus*, shot in Yorkshire: this instance and another previously known are held sufficient for assigning to this bird a place in British Ornithology. "October" terminates with the usual tables of meteorological observations.

IX.—Setting out with a note from Prof. Ehrenberg on the organic origin of the potstones or *Paramoudras* of Whittingham, this number has for a second article, an admirable memoir by Capt. Cook on the genera *Pinus* and *Abies*, with remarks on the cultivation of some species: the captain's observations are most important, with reference alike to science and to silvan economy, and his suggestions offer high claims to the attention of forest-owners, wood-merchants, and governments. Two letters from Capt. DuCane convey much curious information relating to the metamorphoses of *Palaemon variabilis*, the ditch prawn, and *Crangon vulgaris*, the common shrimp, and his account of the remarkable changes which these creatures undergo in passing through their successive states, is illustrated by twelve finely lithographic figures. In notes on *Vespertilio leisleri*, the hairy-armed bat, Mr. Paine distinguishes the animal by zoological characters, and he concludes that its occurrence in the eastern part of Norfolk is not so rare as has been represented. Resuming his descriptions of the new British insects indicated in Mr. Cur-

tis' *Guide*, Mr. Haliday begins with the dipterous tribe: *Culex detritus*, *C. fulveola*, *Leia nasuta*, *Limnobia ægle*, *Spania fallenii*, *Medeterus ruficornis*, *Dolichopus sabinus*, *D. signifer*, *Platypeza infumata*, *Musca morellia importuna et hortorum*, *Anthomyia monilis*, *A. cilipes*, *Scatophaga fuvorum*, *S. maritima*, *Cœlopa pilipes*, *C. frigida*, *C. simplex*, *C. sciomyzina*, *Saltella stellata*, *Sepsis duplicata*, *Tephritis duplicata*, *T. asteris*, *T. pini*, *Oscinis capreolus*, *O. rapta*, *Helomyza arenaria*, *Sciomyza virgata*, *Ochthipila flavipalpis*, *O. geniculata*, *Heteroneura flava*, *Opomyza illota*, *Diastata glabra*, *Sphærocera sobricula* and *Limosina arcuata*. Mr. H.'s hemipters are, *Atheroides serratulus*, *A. hirtellus* and *Eriosoma pallida*, which inhabits the leaves of the mountain-elm. Dr. Meyen's note, contributing the results of experiment, on the formation of the fibrous cells or tubes in the liber of plants, appears in an English version: it precedes a communication from Mr. Reade on some new organic remains in the chalk-flints; this is illustrated with two accurately finished plates, containing twenty-eight figures of scales of fishes not named, and eight of scales of the white-bait, grayling, carp, barbel, red gurnard, grey mullet, gudgeon, and dace; and with figures of nine infusoria—*Xanthidium furcatum*, *X. crassipes*, *X. hirsutum*, *X. ramosum*, and *X. tubiferum*, with three varieties or duplicates—all discernible by the microscope in the flints of chalks: in these, also, very fine examples of coniferous wood sometimes occur. Mr. R. concludes his sketch with the beautifully impressive and well-timed remark—here, he says, "I close this account of an investigation which no right-minded man will prosecute without directing his thoughts to Him who of old turned the hard rock into a standing water, and the flint-stone into a springing well." Mr. Walker furnishes an addition to his descriptions of British Chalcidites, and distinguishes the *Cirr. arcticas* and three varieties, *C. acesiis*, with seven varieties, *C. armæus* and six varieties, *C. metra*, *C. eurytus*, *C. mandariis*, *C. anysis* with five varieties, *C. ecus* and five varieties, and *C. euedochus* with one variety: the characters are defined with particular minuteness and precision. An additional portion of Mr. Cunningham's specimen of the Botany of the New Zealand islands embraces his phytographical characters of *Opercularia diphylla*, *O. aspera*, *Galium tenuicaule*, *G. propinquum*, *Coprosma lucida*, *C. fœtidissima*, *C. propinqua*, *C. rotundifolia*, *C. rhamnoides*, *C. gracilis*, *C. divaricata*, *C. acerosa*, *C. repens*, *C. spathulata*, *Ronabea australis*, *Nertera depressa*, *Geophila dichondræfolia*, *Viscum antarcticum*, *V. pubigerum*, *V. salix cornoides*, *Loranthus tetrapetalus*, *Alseuosmia linariifolia*, *A. ligustrifolia*, *A. banksia*, *A. palæiformis*, *A. atriplicifolia*, *A. ilex*, *A. quercifolia*, *A. macrophylla*,—the *Alseuosmia* is a new genus, and its generic characters are amply delineated,—*Hydrocotyle elongata*, *H. microphylla*, *H. novæ zealandiæ*, *A. dichondræfolia*, *H. heteromeria*, *H. compacta*, *H. moschata*, *H. asiatica*, *Petröselium prostratum*, *P. filiforme*, *Ligusticum aciphylla*, *L. gingidium*, *Peucedanum geniculatum*, *Apium graveolens*, *Panax simplex*, *P. arboreum*, *Cussonia lessoni*, *Polyscias pinnata*, *Aralia schefflera* and *A. crassifolia*, making the 514th article in Mr. C.'s curious and valuable list. Three "bibliographical notices" conduct you agreeably to the "proceedings of learned societies," and the first of these is the "Zoological." At this, a new species of squirrel was exhibited by Mr. Waterhouse, who named it *Sciurus sublineatus*, giving its distinctive characters. Mr. Blyth defined a hitherto-unnoticed peculiarity in the structure of the feet in the Trogonidæ, and Mr. Owen continued his excellent essay on the anatomy of the Giraffe, compris-

ing the principal features of the animal's osteological peculiarities. Mr. Bibron made observations upon two species of Triton—the *cristatus* and *mar-moratus*—which are indigenous to this country. Under the appellation of *Macropus rufiventer*, Mr. Ogilby exhibited a specimen of the Tasmanian wallabee, a new species of kangaroo, whose specific characters he enumerated. Mr. Waterhouse showed a drawing, and the tail and jaws, of a new species of Delphinus, which he called the *D. fitzroyi*, adding a description, admeasurements, habitate of the fish, and a few explanatory remarks. Two species of the Ptilotis were produced by Mr. Gould, and he characterized them as the *P. ornata* and *P. flavigula*, with notes of their habitates. In a letter, Mr. Van der Hoeven expressed his belief that the large salamander preserved in a living state at Leyden, ought to be regarded as a species of *Menopsoma*, instead of which he proposes to adopt the generic term *Cryptobranchus* and the specific name *japonicus*. On this opinion, Mr. Owen offered very pertinent observations, and then Mr. Ogilby displayed a drawing of a *Marsupian* from the interior of New South Wales, which he was induced to suspect might become the type of a new genus: he proposed to name it *Chæropus* provisionally, with allusion to the characters of its fore feet. At the "Botanical," a communication of Mr. Schomburgk's was read on the *Bertholletia excelsa*, accompanied with drawings of the plant in different stages of its growth: a peculiarity in its seed-vessel was noticed by Mr. Gray, and his remark led to some discussion. Mr. Cooper contributed notes on a large variety of the *Ranunculus flammula*, and he then related the particulars of the society's first botanical excursion: to the next meeting, he communicated observations on a new principle of Fencing according to the laws of vegetable physiology: his plan consists in planting trees of the same kind and causing them to unite by the process of grafting by approach or inarching, and thus to form a natural living fence. The Miscellanies include Sketches entitled—*Cardamine sylvatica*, a British plant; the *Gypaëtos hemachlanus*, "a distinct species, new to science," and a habitant of the Himalayan mountains; the *Nasturtium anceps*; the action of free carbonic acid on the nutrition of plants; hybridity of ferns; affinities of the Ceratophyllaceous vegetables; litter of the *Hyæna vulgaris*, and the time of gestation; the *Myrmecobius fasciatus*, an insectivorous animal, referred as a new genus to the monodelphian mammiferous tribe; caoutchouc in the *Apoqueal*, *Asclepiadeal*, *Campanulaceous*, *Sobeliaceous*, *Chicoraceous*, *Euphorbiaceous*, and other orders of plants; death of Mr. Frederic Cuvier; meteorological observations.

The London and Edinburgh Philosophical Magazine and Journal of Science; conducted by Sir David Brewster, F.R.S. Richard Taylor, F.G.S. and Richard Phillips, F.R.S. 8vo, London, 1836.

OCTOBER.—Mr. Draper's remarks on the constitution of the atmosphere, form a long, experimental, and important article, with illustrative diagrams. Notes on shooting stars, by M. Quetelet of Brussels and Dr. Robinson of Armagh, present some interesting particulars. Dr. Schönbein's conjectural observations on the cause of the peculiar condition of iron, are ingenious, and merit the consideration of chemical experimentalists; and the same may

justly be said of Dr. Apjohn's account of his experiments for determining the specific heats of the more remarkable gaseous bodies: the professor's views are sustained by extensive calculations. In a remark on an article of M. Poisson's *Traité de Mécanique*, Mr. Ivory undertakes to demonstrate the theorem—"if an interior level surface be extended through the mass, the body of fluid within the level surface will be in equilibrium independently of the rest of the mass, and supposing the incumbent fluid were removed." In a continuation of his paper on some of the phenomena and laws of action of voltaic electricity, Mr. Binks presents his general inferences deduced from an examination of the results furnished by his diagram and previous tables. In the eleventh series of his experimental researches in electricity, Dr. Faraday takes for subjects—induction an action of contiguous particles, absolute charge of matter, electrometer and inductive apparatus, induction in curved lines, specific inductive capacity, and general results as to induction: these researches will deservedly be referred to as authority; they are now extended to the 1214th section. As a proceeding of the geological society, you find the conclusion of Mr. Sedgwick's synopsis of the English series of stratified rocks inferior to the old red sandstone, with an attempt to determine the successive natural groupes and formations. Standing as miscellanies, synaptasin the principle of almonds, composition of the blood, the iodide of amidin, new compound of sulphate of magnesia and water, chloretical or "chloral of ether," formio-benzoic acid, proportions of gluten in grain, oxide of phosphorus, the sexborate and rhombic baborate of potash, cyanide of gold, are all noticed with more or less copiousness: and then *October* concludes with meteorological observations.

NOVEMBER.—Mr. Ivory introduces this month with observations on a principle laid down by Clairault for determining the figure of equilibrium of a fluid, the particles of which are urged by accelerating forces. A communication then comes from Mr. Johnston on a new compound of sulphate of lime with water: this paper is illustrated by a table exhibiting the formulæ of all the known sulphates, hydrated and anhydrous, of the magnesian class of oxides. The same writer furnishes another of his articles on the composition of certain mineral substances of organic origin: he now treats of Guayaquillite and the guayaquillite of silver. Mr. Laming brings forward the second part of his inquiry on the primary forces of electricity, and Dr. Apjohn concludes his paper on the specific heats of the gases. A chemical analysis of meteoric iron is taken from an American journal of science, and the writer concludes that "our specimen is of celestial origin, and that it is a fragment of one of those asteroides of cometary matter which, wandering in space, occasionally cross our orbit, and, being attracted by the earth, so that they rush through our atmosphere, bursting into fire and descending, take up their abode on this sublunary sphere." Dr. Faraday continues the eleventh series of his experimental researches in electricity, with diagrammatic illustrations; and in a further justification of the contact theory of galvanism, Mr. Fechner treats of facts which relate to the closed circuit, and of the development of electricity by the contact of metals and fluids. Mr. Bird's observations on some peculiar properties acquired by plates of platina which have been used as the electrodes of a voltaic battery, conduct us to the proceedings of learned societies. At the "Geological," there were communications from—the Marquis of Northampton on spirorites in chalk and

chalk-flints; Mr. Taylor on the quicksilver ores of San Onofré in Mexico; Mr. Edmonds on the obsidian of Real del Monté; Mr. Murchison on the Oar's Rock as an indication of the protrusion of strata at that point; Dr. Buckland on the discovery of fossil fishes in the Bagshot-sands, and of a fossil wing of a neuropterous insect in the Stonefield-slate; and Mr. Stokes on some species of Orthocerata, and certain considerations respecting the relations of the shells to the animals to which they belonged. The twenty-fifth annual report of the Royal Geological Society of Cornwall comes next, and then the miscellanies, extracted chiefly from the French and German journals. From the former, we have notes on the tungstate of tungsten and potash, on the stearopten of turpentine, on the pectates of silver, of lead, and of copper: from the latter are derived articles bearing the titles—réagent for the detection of sulphurous acid in the hydrochloric acid of commerce; processes for preparing lithia; new double salt of zinc and potassium; réagent for nitric acid and nitrogen; formate of soda as a reducing substance for arsenic; the transparency of carbon; preparation of arseniuretted hydrogen. Analyses of serum of blood drawn from a diabetic patient, and of the liquor amnii, are selected from the Guy's Hospital Reports, recently published; and, with meteorological observations, the present number is concluded.

The Phrenological Journal and Magazine of Moral Science; 8vo, London and Edinburgh, 1838.

No. LVIII.—For the first articles of this Number, are strictures on anti-phrenology in two letters to Macvey Napier, Esq. and P. M. Roget, M.D. being an exposure of the article called "phrenology" recently published in the *Encyclopædia Britannica*. The *first* of these spirited and beautifully logical epistles exhibits "Macvey Napier, Esquire," as a crouching drone greatly inclined to unfairness and sycophancy: it is impossible to peruse the *second*, without experiencing amazement at the extraordinary ignorance and flagrant dishonesty manifested in Dr. Roget's pseudologies concerning the new science of mind; the evidences here adduced in demonstration of their profligacy, are complete. Next in course to these most instructive communications, comes an account of the establishment of a "Phrenological Association," based on the general resolution that "phrenology being a highly useful and important branch of philosophy, it is desirable to obtain for it, in the public mind, as much respect and consideration as possible:" the report includes very judicious practical remarks on the objects and economy of philosophical institutions. As a fourth contribution, you have a powerful and successful essay to show that phrenology is supported by scientific men; and this is appropriately followed by a letter from a Bohemian count representing the progress of phrenology in Germany. Among the "cases and facts," the first is a communication from Mr. Combe on the size of Sir Walter Scott's brain, and the phrenological development indicated by his bust: here, the facts evince to a demonstration that Scott's "head was really large;" that it was very large in the lower and middle regions of the forehead; that the lower region of the hind head was large; that the coro-

nal region rose to an unusual height ; that, at the organ of veneration it was the highest head Mr. C. ever beheld ; and that, at the organs of benevolence, imitation, and wonder, it had few equals ; every admirer of Scott's writings, and every lover of nature and truth, will peruse this extraordinary document with intense attention, surprise and instruction. From this you pass on to "phrenological exercises," which are admirably adapted to fulfil their author's intention ; then you reach Dr. Verity's notes on the development indicated by the antique busts in the collections of Naples, Rome and Florence : the doctor's subjects are Socrates, Seneca, Zeno, Aristides, Archimedes, Tiberius, Vespasian, Titus and Vespasian ; and then you arrive successively at three short papers having the titles—singular hallucination of a popular clergyman, who imagined that Almighty God, by a singular instance of divine power, had gradually annihilated in him the thinking principle and utterly divested him of consciousness ; case of pain in the organ of philoprogenitiveness in the head of a lady who witnessed an accident happen to her child ; and an anomalous case of nervous affection, apparently induced by sudden excitement in the organ of cautiousness. In an article most remarkably interesting, whether phrenologically or forensically considered, Mr. Simpson proves the identity of Eugene Aram's skull, and he declares on the clearest evidence that it contained the brain of a selfish, violent and dangerous person, who was, at the same time, cunning, cautious, and dishonest, without moral control, with a limited intellect, but having some taste and even a touch of poetical feeling ; he, therefore, concludes that it bears out the perfect indications of all that is known of that extraordinary individual's character. Beyond the notices of books, which are four in number, the two first of which are valuable and instructive, you find intelligence concerning the Glasgow, Aberdeen, Blackburn and Dundee phrenological societies, the phrenological class at the London and the Westminster mechanics' institutions, Mr. Combe's proceedings in America, and a variety of miscellaneous information. In the introduction to his "Library Table," as the third "notice of books" is designated, the Editor vainly propounds "*three points*," alike ill-timed and untenable ; but besides this exception, his fifty-eighth publication contains many essential contributions to the progress of mental philosophy.

* * * *The outlines of other periodicals have unavoidably been omitted for want of space.*

BOOKS RECEIVED.

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- THE London and Edinburgh Philosophical Magazine for October, November, and December.
 The Annals of Natural History for the same months.
 The Magazine of Natural History for the same months.
 The Naturalist for October and November.
 The Phrenological Journal, No. LVIII, for January.
 Microscopic Illustrations, with plates, by Mr. Pritchard.
 Geology of England and Wales, with a map.
 Egypt as it is in 1838, by Waghorn.
 Scheme of the Courses of Education in the Grammar School of Glasgow,
 by Mr. Dorsey.
 Annual Report of the Birmingham Philosophical Institution.
 Proceedings of the Literary and Scientific Society at Staines.
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ERRATA IN No. 25.

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- Page 2, lines 5 and 26, for *Burton* read *Buxton*.
 Page 5, line 18, for *Burton* read *Buxton*.
 Page 9, line 9, for *cupping* read *capping*.
 Page 12, line 24, for *wood* read *road*.
 Page 12, line 39, for *engrossing* read *exposing*.
 Page 14, *note*, for *trading and trades* read *hading and hades*.
 Page 37, line 14, for *increase* read *decrease*.
 Page 37, line 20, for *Cerilhium* read *Cerithium*.

Wheldoni

25 NOV. 1916



SEPTEMBER.

Serr.	Bar.	Alchd.	Bar.	Alchd.	Dew Point.	External Thermometers.	Rain in	Direction	Remarks.			
		Ther.	Ther.	9 a.m.	3 p.m.	9 a.m. 3 p.m.	Inches, read off at 9 a.m.	of Wind at 9 a.m.				
				deg. of Fah.								
1	20.58	61.0	29.58	62.5	51.0	52.0	61.5	53.0	62.0	S.	Overcast all day; a slight deposition at night.	
2	29.63	60.0	29.65	62.0	50.5	51.5	58.0	52.0	65.0	W.	Very fair.	
3	20.65	59.5	29.62	62.0	52.0	57.0	62.5	51.0	63.0	S.S.W.	Very fair.	
4	29.5	60.0	29.38	68.0	54.0	52.0	59.0	63.5	48.5	S.	Fair, but overcast.	
5	29.07	61.5	29.01	68.0	58.0	59.0	65.0	54.0	67.5	S.E.	Overcast, ending in rain.	
6	26.78	62.5	28.76	71.0	57.0	57.5	62.0	54.0	64.0	S.S.E.	Overcast, with light showers.	
7	28.34	61.5	28.89	61.0	56.0	53.0	56.0	53.0	56.0	N.N.E.	Clouded a.m.; showers p.m.	
8	26.21	55.5	29.32	56.0	47.5	45.5	48.5	46.0	53.0	W.N.W.	Overcast, but fair.	
9	29.68	54.0	29.72	60.0	41.0	43.5	50.0	45.0	57.0	S.W.	Fair, but occasionally clouded.	
10	29.89	52.0	29.89	56.0	37.0	45.0	56.5	41.0	57.0	W.N.W.	Very fair.	
11	30.0	52.5	30.0	60.0	44.0	45.0	54.0	41.0	63.5	S.W.	Very fair.	
12	29.95	57.0	29.9	61.0	51.0	52.0	56.0	62.0	63.0	S.	Fair, but overcast.	
13	29.8	60.5	29.7	62.5	55.0	52.0	62.0	55.0	62.5	S.	Overcast, but fair.	
14	29.52	61.0	29.6	66.0	56.0	59.0	63.0	54.5	65.0	S.S.E.	Overcast a.m.; a slight deposition p.m.	
15	29.59	63.0	29.59	64.5	58.5	59.0	58.0	53.0	54.0	S.E.	Fair, but overcast.	
16	29.6	63.0	29.58	68.0	59.0	57.0	67.5	53.0	58.5	S.E.	Very fair a.m.; overcast p.m.; a slight deposition at night.	
17	29.6	62.0	29.6	63.5	57.0	58.0	60.0	53.0	62.0	N.E.	Overcast, but fair.	
18	29.6	59.5	29.56	63.0	49.5	50.0	52.0	50.0	58.5	N.E.	Overcast, but fair.	
19	29.48	58.0	29.43	60.0	52.0	55.0	52.0	49.0	57.0	E.S.E.	Overcast; rain at night.	
20	29.33	57.0	29.34	54.0	51.0	50.0	55.0	49.5	60.0	S.S.W.	Very fair.	
21	29.36	55.0	29.36	59.0	47.0	44.0	52.0	58.5	65.0	W.N.W.	Very fair.	
22	29.45	54.5	29.44	60.0	49.0	50.0	60.0	40.5	60.0	S.S.E.	Very fair. External thermometer raised to the same level as the rain gauge. [36 feet.]	
23	29.46	58.5	29.36	61.0	55.0	56.0	59.0	52.5	67.0	S.S.E.	Very fair; rain at night.	
24	29.41	56.0	29.38	57.0	51.0	53.0	61.5	44.0	58.0	S.S.E.	Fair a.m.; rain p.m.	
25	29.3	52.0	29.33	53.0	49.5	50.5	48.5	46.0	50.5	W.	Light continuous rain all day.	
26	29.45	54.5	29.46	56.5	51.5	51.5	52.0	49.0	57.0	E.S.E.	Overcast; much rain at night.	
27	29.43	54.0	29.42	56.5	51.0	52.5	51.0	48.0	56.5	N.N.E.	Overcast, but fair.	
28	29.5	53.0	29.52	56.5	48.5	52.5	48.5	45.0	61.5	W.S.W.	Very fair.	
29	29.54	55.0	29.54	58.5	53.0	55.0	62.0	46.0	63.5	S.W.	Overcast, but fair.	
30	29.7	57.5	29.77	68.5	54.0	57.5	56.0	51.0	67.0	W.	Very fair.	
Mean		29.49	57.45	29.42	61.20	51.55	52.52	54.97	59.80	49.13	61.30	1.695 Sum.

Barometer. 9 a.m. 30.0 11h 30.0 11h 30.0
 Thermometer. 6h 28.76 6h 40.5 22nd 37.0 10th 43.5 9h
 Dew Point. 9 a.m. 59.0 16h 59.0 5-14
 Height of the cistern of the barometer above the ground, 23ft. 6in.
 Height of the cistern of barometer above the presumed mean level of the sea, 472ft. 6in.
 Height of the external thermometers above the ground—Fah., 38ft.; Self-reg., 38ft.
 Height of the receiver of the rain-gauge above the ground, 36ft.

OCTOBER.

Ocr.	9 o'clk, a.m.		3 o'clk, p.m.		Dew Point, deg. Fah.	External Thermometers.		Rain in Inches, read off 9 a.m.	Direction of Wind at 9 a.m.	Remarks.		
	Bar.	Ther.	Atchd. Bar.	Atchd. Ther.		Fahrenheit. 3 p.m.	Self-register. 9 a.m.				Wst.-reg. 9 a.m.	Hhst. 9 a.m.
1	29.88	58.0	29.87	58.0	55.0	54.5	55.0	53.0	56.0	Overcast, but fair.		
2	29.92	57.0	29.92	59.0	52.0	53.5	59.0	51.0	61.5	Very fair.		
3	30.0	55.5	29.98	59.0	51.0	48.5	56.0	48.0	61.0	Very fair.		
4	29.95	53.0	29.43	56.5	48.5	50.0	51.5	43.0	69.0	Very fair.		
5	29.86	49.5	29.37	55.0	39.0	48.0	53.0	62.0	41.0	Very fair.		
6	29.9	51.0	29.9	53.0	43.0	48.0	43.0	51.0	51.5	Overcast, but fair.		
7	29.9	52.0	29.87	55.0	48.5	50.0	49.0	54.0	47.5	Overcast, a slight deposition during the night.		
8	29.89	53.5	29.89	54.0	44.5	50.0	52.0	47.5	54.0	Overcast, but fair.		
9	29.89	53.0	29.85	54.0	48.5	48.5	52.0	47.5	54.0	Overcast, but fair.		
10	29.74	53.0	29.69	54.0	44.5	48.0	49.5	47.0	53.0	Overcast, but fair.		
11	29.48	53.5	29.38	55.0	48.5	44.0	53.5	49.0	56.0	[from S.W., greatest force 7lbs. sq. ft. at 9½h. p.m.		
12	29.18	47.0	29.17	48.5	34.5	35.0	42.0	39.0	56.0	Fine morning, overcast towards noon; highest temp. 11½h. a.m.; brisk wind		
13	29.32	44.0	29.32	44.0	32.0	32.5	36.0	40.0	33.5	Fine 9 a.m., rain and sleet soon after; gale continuing from N.W., 6th. force.		
14	29.33	44.0	29.06	46.5	41.0	44.5	43.0	41.5	42.0	Snow at 9 a.m.; overcast all day.		
15	29.08	49.0	29.08	41.5	43.5	48.0	52.0	56.5	48.0	Overcast; S.W. gale, max. force 8ths. at 10m. before 9 p.m.; rain at night.		
16	29.07	54.5	28.98	57.0	52.0	54.0	56.0	57.0	53.0	Overcast; brisk wind from S.W., max. force 5ths at 4 p.m.		
17	28.77	54.0	28.86	54.0	45.5	40.5	52.5	52.0	49.0	Overcast; brisk wind from S.W., max. force 5ths at 4 p.m.		
18	29.5	49.0	29.27	51.0	37.0	46.0	46.0	49.0	38.0	Clouded, much wind from S.W. max. for 12ths. 3 p.m.; heavy rain at night.		
19	29.43	53.0	29.52	64.0	43.0	43.0	52.5	51.0	48.5	Fine morning; floating clds., slight deposition at noon; overcast p. m.; S.W.		
20	29.56	57.0	29.61	59.0	49.0	47.0	57.0	58.0	59.0	Cloudy, S.W. gale increasing, 13½ press. 9½ p.m. [breeze, gr. for 5½h. 9 p.m.		
21	29.75	58.0	29.72	59.0	54.0	57.0	58.0	58.5	52.0	A fine morning; fair all day.		
22	29.61	58.0	29.56	59.0	55.0	56.0	56.0	59.0	53.5	Very fair a.m.; overcast p.m.		
23	29.4	57.5	29.34	59.0	53.5	56.0	55.0	57.0	60.0	Overcast, but fair.		
24	29.29	57.0	29.36	59.0	51.0	45.0	53.0	56.0	49.0	Fair a.m.; overcast p.m.		
25	29.55	54.5	29.46	55.0	49.0	43.0	48.0	53.0	42.5	Overcast all day; rain at night; a gale from S.E., max. force 7½lbs. at 20m.		
26	29.29	55.0	29.36	56.5	48.0	48.0	54.0	52.5	51.5	Overcast all day; rain at night; a gale from S.E., max. force 7½lbs. at 20m.		
27	29.33	50.0	29.14	52.0	48.0	48.0	46.0	51.0	58.0	Rain a.m.; overcast p.m.		
28	29.8	51.0	29.04	52.5	45.0	45.0	46.0	49.0	43.5	Rain 9 a.m. cont. all day; much wind from S.E., max. pres. 7th. 20m. p. 2 p.m.		
29	28.81	49.0	28.97	50.5	42.0	40.0	45.0	47.0	38.0	Fine morning; rain at night; wind variable, force 9½lbs. at 5½h. a.m. of 19th.		
30	29.17	47.5	29.18	50.0	42.0	39.0	44.0	49.0	36.0	[Gale continuing, force 9ths. at half-past 11, S.W.; calm eveng. [heavy rain		
31	29.33	47.5	29.3	49.0	50.0	38.0	42.0	46.5	40.0	Very fair a.m.; overcast p.m.		
										A dense fog; fair p.m.; rain at night.		
Mean	29.49	52.41	29.45	54.49	46.0	46.73	50.06	52.75	45.25	54.35	1.980	Sum.

Height of the cistern of the barometer above the ground— Fah.	Dew Point.	Thermometer.	Barometer.	Height of the cistern of the barometer above the ground, 29ft. 6in.		
				9 a.m.	3 p.m.	21st
Highest, 30.96,	55.0	63.0,	3rd	29.96,	3rd	29.96,
Lowest, 28.77,	32.0	33.5,	13th	28.86,	17th	28.86,

THE PHRENOLOGICAL JOURNAL, No. LVIII., being the Fifth Number of the New Series, will be published on the First of JANUARY, 1839, Price 2s. 6d.

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 2. Doubts respecting the Class, Family, and Genus, to which the Fossil Bones found atonesfield, and designated by the names of *Didelphis prevotii* and *Did. bucklandii*, should be referred, by M. de Blainville.
 3. Notices of Irish *Entozoa*; by James L. Drummond, M.D. ~
 4. A Descriptive List of the Species of Rhysodes; by Edward Newman, F.L.S.
 5. Letter from Thomas Bradley, Esq., respecting the habits of the Electric Eel, as observed at the Royal Gallery of Practical Science, West Strand.
 6. Account of Experiments on the Transformation of Oats into Rye; by W. Weissenborn, M.D.
 7. Notice of the Examination of the Candidates for the Botanical Prizes given by the Apothecaries’ Society; by W. B. Ward, Esq.
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CONTENTS of No. 84, for DECEMBER, 1838.

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 2. On some apparent exceptions to the law that like Crystalline Forms will indicate like Chemical Formulæ; by Professor J. F. W. Johnston, of Durham University.
 3. Experimental Researches in Electricity; by Professor M. Faraday, Esq.
 4. On a new Voltaic Combination; by W. R. Grove, Esq., M.A.
 5. An extension of Sir John Wilson’s theorem to all Numbers whatsoever; by Professor J. Sylvester.
 6. On the Reduction of Chlorides of Mercury when mixed with Organic Substances; by J. Nevins, Esq.
 7. On the Motion and Rest of Fluids; by Professor J. J. Sylvester.
 8. On the process of obtaining the Bichromate of the Perchloride of Chrome, as viewed under the Microscope; by the Rev. F. Craig.
 9. Experiments on Combustion and Flame; by D. Gregory, Esq.
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 11. On a Remarkable Difference in the Heat obtained by the Electrodes of a powerful Constant Battery; by J. P. Gassiot, Esq.
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No. XXVII.

APRIL, 1839.

THE ANALYST;
A
QUARTERLY JOURNAL,
OF
SCIENCE, LITERATURE,
NATURAL HISTORY AND THE FINE ARTS.

EDITED BY

EDWARD MAMMATT, Esq., F.G.S., F.S.A.,

MEMBER OF THE BRITISH ASSOCIATION, OF THE BIRMINGHAM PHILOSOPHICAL INSTITUTION, AND OF THE LEICESTER, THE DERBY, AND THE NOTTINGHAM LITERARY AND SCIENTIFIC SOCIETIES.

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Philodemus shall have a private communication.

Mr. Blyth's Sketches in Natural History shall appear in our next publication.

Remarks on the Pathology of the Human Mind is under consideration; as is the Lover's Probation, a moral tale.

We thank Mr. C. G. for his List of Mosses, which we shall have pleasure in publishing.

The Outlines of Periodical Literature will be extended, in our future numbers, to the principal periodicals of France and Germany.


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 The 28th Number of *The Analyst* will be published on the 1st of July next.

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CRITICAL OBSERVATIONS ON BISHOP BURNETT'S
 "HISTORY OF THE REFORMATION OF THE
 CHURCH OF ENGLAND."

(Continued from page 208).

AMONG the opponents of Burnett is to be numbered Hickee, now remembered chiefly for his works on northern literature.¹ The bitterness of theological odium, sharpened by party rancour, urged him to assail his performance. He was the leader of that party in the church which could not frame the lips to pronounce the oaths of abjuration in King William's time. Before the Revolution he held the deanery of Worcester. Burnett had impeached the consistency of his conduct,² in first admitting the excellence of the reformation in religion and government proposed to be made by the Prince of Orange, and afterwards in denying that it was calculated to promote the interest, honour, and glory of the nation. But, with all Hickee's acuteness and ability—with all his disposition to pounce, with a lyncean quickness, upon every misstatement of facts or reasoning in the enduring volumes of Burnett—he has only ventured to bring this one explicit charge against him, that he had published a letter of Luther falsely and imperfectly.

As it was the singular lot of Burnett to be so often vilified and insulted, in his character as a divine, a scholar, and a man, the justice due to his memory compels us to give the substance of some of his replies in his own words; because there is that appeal to certain and momentous facts which must satisfy the unbiassed that they have the impress of truth upon them. Besides, these replies being known to so few, it is to be presumed that alone will exempt them from the charge of tediousness in the estimation of the curious. Adverting, then, to Hickee's allegation, the bishop commences by saying that "it was this accusation which determined him to write these reflections; and that he could otherwise have despised the author's malice with the same patience and easiness that he had

¹ Many and great, however, are the defects of his *Thesaurus Septentrionalis*. In prosecuting, for instance, his etymological researches into the dialects of our continental ancestors, Hickee has committed the singular blunder of confounding the old Saxon and Franca, which are so very opposite.

² "I can assure the world," says he, (p. 57-8), "that in the list of the divines who were represented in wishing that the then prince would engage in our defence, the late Dean of Worcester (Dr. George Hickee) was named for one, how truly he best knows."—See *Reflections upon Dr. Hickee in some Letters upon Dr. Burnett and Dr. Tillotson*.

formerly expressed, when provoked by him. But I confess," proceeds he, "I had a true zeal of maintaining the honour of the work, and justifying it from all blemishes. I will not open so black a scene as to tell what pains some, who are called protestants, have taken to undermine the credit of the book. The three persons who were most concerned in it have answered it elsewhere. Two of them were the under-workmen to one of an higher form; but hitherto all the attempts that have been made that way have succeeded, contrary to expectation, to the raising and establishing the credit of that work." Burnett then proceeds to tell us that in the summer of 1769 he was desired by Dr. Thomas Tenison, afterwards Archbishop of Canterbury, to go and examine the manuscripts in Corpus Christi College, in Cambridge. He met Dr. Barker there; and that learned society afforded him all the conveniences for reading or copying their manuscripts. He was likewise received with great kindness by Dr. Turner, afterwards one of the non-juring bishops, who not only lodged him with himself, but furnished him with two amanuenses, Mr. Smith and Mr. Tomkinson, who afterwards also refused the oaths: "but they are men of truth and probity; and I appeal to them how faithfully every thing was copied out, and how exactly all was compared." The hands of the reformers, Luther's in particular, were very hard to read; and though he had then been much practised in reading the hands of that age, yet he and his amanuenses were often put to guess rather than read.

In some letters, which could not be read, Archbishop Parker had written their reading in the margin. That letter of Luther grew so hard to be read that he could not go far in it; so that he only copied out the beginning and the end of it. It seemed to agree so entirely with the method which most of the divines of the Church of England took, for a great while, of explaining Christ's presence in the Sacrament in the term "real presence," without using the word "figure," that "though," says Burnett, "I never liked that method too well—for I never cared to use the phrase of real presence, nor avoided to call the Sacrament a figure—yet I was willing to show that here a way was proposed, and (as I thought) once agreed to, of keeping the matter in those general words. And thus, in compliance with a method that I had never used myself, I honestly published as I thought we had read it. No comprehension could be designed by this, but that which has been promoted by many of the most zealous divines of this church. The learned and noble Seckendorf addressed some persons to me to be satisfied concerning that letter, who directed them the best I could. They had

free access given them, and they reported no difference to him but *nihilominus* for *nihil minus*. If either this was too hastily examined, or if the writing seemed to favour those mistakes with which Dr. Hickee charges me—of which I could say nothing at such a distance of time—I am sure that, whatever might occasion the mistakes, there was no fraud intended; there could be none; nor was there any consequence to be drawn from it. It was shewed what Bucer’s proposition was, to which I fancied that Luther had once agreed. But, so exactly will I follow truth, that whensoever an attested copy of that letter is sent me from that learned body, which two worthy members of it have promised to procure for me, I will certainly publish it in the next edition of my history. In a matter, in short, of no great consequence, there was too little care had in copying, or examining, a letter writ in a very bad hand.”³

In addition to these more distinguished authors, the Rev. Simon Lowth, or, as he is elsewhere denominated, “the holy watchman,” stepped forth to join the hostile phalanx, and thought proper to address the bishop in terms so disrespectful and indecent, that, even in an age not remarkable for any thing like delicacy of feeling in those who exercised the censorial office, they were yet proscribed by the more liberal and better educated part of the community. “You conceal Cranmer’s subscription⁴ where you should have mentioned it. What shall we call this? Fraud, falseness, equivocation, shuffling, impudence? I call it neither; but some in England call it a *Burnettism*, meaning a complication of all this!”⁵

Now the coarse ribaldry, and the gross slanders, with which Mr. Lowth has stained the page of controversy, would have been passed over by us wholly unnoticed, if he had not coupled with them the scandalous accusation that Burnett and Bishop Stillingfleet had unlawfully combined in their endeavours to lessen the sanctity of the episcopal ordination; and had employed Archbishop Cranmer’s name in furtherance of their iniquitous design, and also that of Archbishop

³ See Burnett’s *Reflections upon Dr. Hickee’s Pamphlet*, p. 79 (seq.) Thomas Crenius, in his *Commentationes Theologicæ*, had urged the same charge against our historian that Hickee had done, and published Luther’s letter at length.—See upon this subject *Hist. of the Reform.* vol. iii, p. 301.

⁴ To prove that this is a wilful misrepresentation, the reader has only to turn to the first volume of Records appended to the *Hist. of the Reformation*, and he will find a paper entitled “A Declaration made of the Functions and Divine Institution of Bishops and Priests,” to which Cranmer’s name is subscribed, after the vicegerent Cromwell, p. 483.

⁵ See *Some Remarks on Dr. Burnett*, p. 14, by Simon Lowth. Lond. 1685.

Usher.⁶ Every theological student is aware that the former prelate leaned at one time to Erastian principles, or something very like them: a circumstance not to be surmised in the history of a divine so deeply read as he was in the fathers' councils and canons. The fact, however, seems irresistibly clear, that the primate had entertained "singular opinions"⁷ of the prelatical functions; for we have upon record his refusal to proclaim the apostolical institution of episcopacy; and his belief that the offices of bishop and priest were at first one and the same; though afterwards, in the book which passes under the name of Cranmer's *Catechism*,⁸ he fully assented to the divine institution of each, having now quite laid aside, as Burnett observes, "those singular opinions." Well, indeed,

⁶ To those who are acquainted with the writings of this most learned prelate, the assertion of his holding opinions at variance with the orthodox on the subject of episcopacy, may well excite the surprise of the readers of his several tracts in favour of that institution. Admitting that, in his treatise concerning the original of bishops, or a *Chorographical and Historical Disquisition touching the Lydian or Proconsular Asia, and the seven Metropolitane Churches contained therein*, that after proving from ACTS xix, v. 17, supported by REV. ii, v. 1, that bishops and metropolitans were instituted by the Apostles, a few passages may be selected from this treatise, which shall bear a doubtful character as to the degree of superiority in which he placed the order of episcopacy; yet there is sufficient evidence, from the commencement to the end of this book, that the Archbishop of Armagh was a most decided episcopalian.

⁷ "It is true that he had some singular opinions about ecclesiastical functions and offices, which he seemed to make wholly dependent on the magistrates, as much as the civil were; but he never studied to get his opinion in that made a part of the doctrine of the church, reserving only to himself the freedom of his thoughts, which, I have reason to think, he did afterwards either change, or at least was content to be overruled in it."—*Hist. of the Reform.* vol. i, p. 348. But though, at the accession of Edward VI, he intimated to his brother bishops that the possession of their sees depended on the pleasure of the crown, and accordingly accepted a new commission to execute the functions of an archbishop, yet assuredly he was not under the influence of Erastian principles when that book of high authority, though not of law—for it never received the royal confirmation—the *Reformatio Legum*, appeared, the chief execution of which belonged to him (Summæ negotii præfuit Thomas Cranmerus archiepiscopus Cantuar. Præf. *Reform. Legum*). For the first head asserts that the four first general councils are to be received; and in that of Chalcedon, one of the four, we have this decree:—'Επίσκοπον εις πρεσβυτηριον βαθμον αναφέρειν ιεροσυλια εστιν. It is sacrilege to bring back a bishop to the degree and order of a presbyter.

⁸ It was translated from a German catechism, and a latin version of it was made by Justus Jonas, a man of considerable note among the Lutheran party.—See Burton's Preface to Cranmer's *Catechism*. Oxford, 1829.

may they be stated as strange notions, not recognised as the confessed doctrines of the Anglican Church, when we find, with the exception of the archbishop and a single adherent to his opinion, that the commissioners appointed to deliver their sentiments on certain theological points, declare "that a bishop hath authority by Scripture to make a priest; and that any other ever made a priest, since Christ's time, they read not." The twelfth question, Whether in the New Testament be required any consecration of a bishop and priest, or only appointing to the office be sufficient, Cranmer had but one commissioner in unison with himself, the rest declaring that ordination, or consecration, is necessary. The authenticity and importance of the document containing these replies, are equally indisputable.

This calumniating pamphleteer (Lowth) has also gone the length of asserting that "the bishop endeavours to lower the character of Cranmer in every way;" although Burnett has emphatically said, "If we consider narrowly, we shall find as eminent virtues and as few faults in Cranmer, as in any prelate that has been in the Christian Church for many ages." They, then, who are willing to take facts for the basis of their reasoning, will be slow to admit the truth of Lowth's assertion. It will be alleged, perhaps, by the professed panegyrist of the primate, that our historian pronounces an unjust censure on his capacity when he says "he had a good judgment, but no great quickness of apprehension, nor closeness of style, which was diffused and unconnected; therefore, where anything was to be penned that required more nerves, he made use of Ridley."⁹ Pas-

⁹ Archbishop Lawrence, in his *Bampton Lectures*, has severely commented upon this remark of Burnett, accusing him of assuming what he knew was not the fact, with respect to his borrowing the assistance of Ridley's pen in those compositions to which his name was affixed. We cannot, however, give an unqualified assent to the censures of the archbishop on this occasion. The parts and acquirements of Ridley were acknowledged to be of the first order by his adversaries—see Lingard's *Hist. of England*, vol. vii, p. 268—and his unbending principles appeared in every action of his life. His boldness, for instance, was equal to his address in maintaining the usurpation of Lady Jane Grey, as a necessary step for the preservation of the protestant religion. He who is strongly nerved in his deeds, will, in all probability, be so in his writings. Burnett, therefore, in asserting that "when anything was to be penned that required more nerves he made use of Ridley," has not shown himself ignorant of either human nature or human history. We collect, indeed, from Ridley's examination at Oxford—see Fox, 1317—that Cranmer had consulted him on the compilation of the Articles; and that, according to his own acknowledgement, he had noted many things for

sages, no doubt, may be selected from the archbishop's writings, especially from his celebrated work on the Sacrament, of great pith and pointedness of expression, full of impassioned vividness, with strong and masculine eloquence. But the style of his performances is, in general, rather prolix and cumbrous; some of his protracted sentences weary and exhaust the mind; in others, there is a manifest want of lucidness of arrangement. Yet to attain perspicuity in his compositions, seems to have been the highest object of his ambition, if we may judge from one of his own observations, where he flatters himself that he has "made more clearly appear the light from the darkness, the truth from false sophistical subtleties, and the certain word of God from men's dreams and fantastical inventions." It is extremely unfair, however, to conclude that because Burnett does not proclaim Cranmer's English style to be incomparable, his diction always lucid, nervous, elegant, and varied, he therefore sought to impugn the powerful intellect of him who had the principal share in the compilation of our Articles, Homilies, and Liturgy, to whom the nation owes so large a debt of gratitude for his admirable conduct of our Reformation, from its earliest commencement under Henry VIII to the accession of Edward VI.

With still more palpable unfairness, it is asserted that Burnett was decidedly hostile to the memory of Cranmer, because he censured the share which the archbishop had in the condemnation of Lambert, Anne Askew, George Van Pare, Frith, Joan Boucher, and other religious offenders; particularly making to the young king the most urgent solicitations to bring the last named delinquent to the stake. In speaking of this misdeed, our historian attempts to spread over it a most bewildering gloss, palliating it in these vague and inconsistent terms: "One thing was certain, that what he did in this matter flowed from no cruelty of temper in him, no man being further from that black disposition of mind; but it was truly the effect of those principles by which he governed himself."¹⁰ In

them. Surely, then, there is nothing far-fetched in the suppositions that the bolder views and stronger talents of Ridley may be displayed in these notes. Even Strype throws out this conjecture, that the archbishop was the penner, or at least the great director, of the Articles, with the *assistance*, as is *very probable*, of Bishop Ridley.—*Mem. of Cranmer*, p. 272.

¹⁰ *Hist. of the Reform.* vol. ii, p. 232. A contemporary of Burnett—one, we should suppose, who held "a Roman pen"—in allusion to this act of Cranmer's, remarks that "he even went out of his way to glut his thirst for human blood, signing uncanonically the warrant for the execution of Seymour, the Lord High Admiral, which was contrary for a peer of parliament

this one instance, Cranmer completely departed from the mildness of temper, and moderation of principle, which usually marked his actions. Even the tears of Edward upon signing the warrant, which do honour to his memory, made no impression upon this severe punisher of heresy. Nevertheless, Burnett is still ready to play the advocate for the primate; for he remarks that “when the young king said to him that if he did wrong it was in submission to his authority, and he should answer for it to God, this struck the archbishop with much horror, so that he was very unwilling to have the sentence executed.”¹¹ Great, however, as may have been his sensitiveness on that occasion, it did not deter him from committing his victim to the flames, as he believed himself obliged, says another of his apologists, “for conscience sake.” It may be, and indeed has been, said in justification of Cranmer, that he was not present at the council board when it was determined to revive the Romish statutes, which declare heresy to be a crime punishable with death; but surely his absence entitled him to no praise of superior lenity, as he offered no opposition to the sentence. To reconcile such a line of conduct on the part of Cranmer with his scrupulous conscience, and with his gentle nature, it will perhaps be near to the truth if we say that we here witness the prevalence of system over temper: for though the great work of ecclesiastical reformation was uppermost in Cranmer’s mind, he was unable to guard himself against the insidious approaches of that Jesuitical spirit by which the pontifical power had so long borne down the most precious rights of man.

Another pregnant indication of *malus animus* in Burnett, towards the archbishop, is discovered by Lowth in his observation respecting Cranmer’s celebrated protestation on entering the See of Canter-

to do by the law of parliament.—See *Observations on the Character of Archbishop Cranmer*, p. 21. London, 1686. Now, though it was enacted in the constitutions of Clarendon, under Henry II, that no bishop, abbot, or clergyman, was to judge any person to the loss of life or limb, or to give his vote or countenance, for that purpose, to others; and a much older canon to that effect had been brought into England by Lanfranc—see *Stillingfleet’s Ecclesiastical Cases*, vol. ii, p. 254—yet, as the head of the English Reformers, Cranmer might choose to take this occasion to show that it was not required of him to be bound by the narrow superstitions of a Roman canon, especially as there was no reasonable pretext for accusing him of inhumanity in putting his name to the warrant, as the council’s order for the execution is made conditional on the king’s sanction being obtained: “the king’s writ,” says Burnett, being first directed and sent forth for that purpose.”

¹¹ Eleven months elapsed between her examination in April, 1549, and her committal to the flames on May 2, 1550.—*Strype, Mem.* vol. ii, p. 335.

bury, "that it agreed better with the maxims of the casuist than with the prelate's sincerity." When Cranmer was consecrated he swore canonical obedience to the pontiff; but before he took the oath he called four witnesses into St. Stephen's Chapel, and in their presence declared "that he did not intend to restrain himself thereby from anything to which he was bound by his duty to God or the king, or from taking part in any reformation of the English Church which he might judge to be required." Now surely, to a plain understanding, not addicted to sophistical refinements, the only question here is, ought not Cranmer, instead of receiving the bulls from Rome, with a perfect knowledge of the obligations thereby imposed, to have explicitly told the king that, already resolved to oppose the papal authority, his conscience would not allow him to accept the vacant archbishopric from any other hands than those of his majesty, or to acknowledge any foreign ecclesiastical supremacy? Many of the props of good government and religion must fall, if Cranmer's conduct be justifiable. Where, in short, is the man of virtue who can approve it? where the man of wisdom who can be satisfied, in the instance before us, that a promissory obligation could be got rid of without some declination from the Christian character? For he who consents to take a prescribed oath, no matter whether the terms by which he binds himself to its observance be foolish or wise, cannot surely evade it without being guilty of a breach of faith. Weighing Cranmer's conduct, then, with the largest allowance to human frailty and human error—with the amplest indulgence for the exigency of a pressing occasion, "which often prevents a man from calling into action fixed principles"—we cannot but subscribe to the opinions of those who maintain it to be utterly indefensible.

Reverting, then, to the insinuation of Burnett's antagonist, that he was unfriendly to the reputation of Cranmer, we should say that, so far from there being any appearance of a want of heartiness, which would excite suspicion and raise disbelief of the truth of that statement, it is by no means difficult to produce instances where he has glossed over faults in Cranmer which could not be hidden, and entirely overlooked others in which more candid historians¹² must

¹² Honest old Fuller seems to have been partly of this opinion. "Cranmer," says he, "had done no ill, and privately many good, offices for the protestants; yet his cowardly compliance hitherto with popery, against his conscience, cannot be excused: serving the times present in his practice, and waiting on a future alteration in his hopes and desires."—*Church Hist.* p. 371.

admit that he did not act up to his high functions and responsibilities. Now it is evident to the most careless reader that Strype, in summing up the character of the archbishop, holds him in the profoundest reverence. "I do not intend," says he, "these my collections for such a panegyric of him as to make the world believe him void of all faults and frailties—the condition of human nature. He lived in such critical times, and under such princes, and was necessarily involved in such affairs as exposed him to greater temptations than ordinary. And if any blemishes shall, by curious observers, be espied in him, he may therefore seem the more pardonable; and his great and exemplary goodness and usefulness in the church of God may make ample amends for some errors." Yet the rectitude of the biographer's mind, and his reverence for historical truth, would not allow him to suppress Cranmer's six recantations.¹³ He had the honesty to publish all these, which were not fully known before; whereas Burnett has unduly omitted these lapses, and has given favourable impressions of those which he mentions.

The sudden and unexpected downfall of Queen Anne, no doubt, placed Cranmer, for a time, in great jeopardy: and he has been extolled immoderately by Burnett for venturing to write a letter to the blood-thirsty persecutor in behalf of this most injured lady. What less could the first minister of religion do, when he acknowledges that "next to his grace, he is most bound unto her of all creatures living," and when his heart must have secretly told him that a cruel and unjust sentence was about to be passed on her? In this much-praised letter, in vain must we look for any generous burst of feeling, for any touches of that high-minded magnanimity, which, in the face of all consequences, can vindicate the honour of the Lutheran¹⁴ Queen. Surely there is nothing of such a nature in this declaration respecting the object of his sympathies and affections. "If she be found culpable, considering your grace's goodness towards her, and from what condition your grace of your only meer goodness took her, and set the crown upon her head, I repute him not your grace's faithful servant and subject, nor true unto the

¹³ Five of them are given in his *Eccles. Mem.* vol. v, p. 392, and the other in Fox, p. 559.

¹⁴ "What, though I know her virtuous
And well deserving, yet I know her for
A spleeny *Lutheran*; and not wholesome to
Our cause, that she should lie in the bosom of
Our hard-ruled king."—*Henry VIII, Act 3rd.*

realm, that would not desire the offence, *without mercy*, to be punished to the example of all others."

In estimating, however, Cranmer's character, it is but common justice to him to remember that he grew into greatness under disastrous influences, that he lived in a semi-barbarous court, the sovereign of which was at one time a cool, reasoning, deliberate tyrant, at another, so possessed with those furies of the mind which make men rage and storm like the sea, that he tossed all the duties of justice and honour to the winds when they offered any contradiction to the indulgence of his lusts and passions; ¹⁵ being of so daring and domineering a temper that it has been said of him, "that he dreaded nothing less awful than the falling of the heavens. Under such a prince, ¹⁶ Cranmer was called, or rather forced, from his lettered solitude, to become the directing and governing head of ecclesiastical affairs; for with his dying breath he declared that he was compelled to accept the see of Canterbury; ¹⁷ and it was only by trimming his sail to every wind, by a compromise to the over-ruling difficulties of his situation, that he could hope to preserve even his life, much less to accomplish any of the great plans of good which he had formed for his country. It might have been expected of him that he would set his face "like a flint" against all Henry's unjustifiable acts of turpitude and flagitiousness. But had he been endowed by nature with the inflexible courage and firmness of a Martin Luther or a John Knox, and exhibited them before a man who was above

¹⁵ Swift styles him, in his usual coarse way, "an infernal beast," with reference only to his spoliations of the church, which many, in these days, would designate as church reforms. Granville Sharp, in his well-known treatise upon the Greek Article, considers him to be one of the horns of the *beast*. "A judgment," says he, alluding to REV. chap. xvii, v. 16, "first begun by our English horn, Henry VIII."

¹⁶ The following judicious apology is offered by Dr. Parr for the temporizing compliances of Cranmer:—"It was quite impossible to suppose that with such a monarch as Henry VIII, and in such a disturbed condition of things, civil and ecclesiastical, human wisdom and human virtue could, in all cases, have enabled any human being to preserve his innocence."—See his works.

¹⁷ "I protest before you," was the archbishop's solemn asseveration in the presence of the commissioners of Oxford, "that there never was man came more unwillingly to a bishopric than I did to that. Insomuch that when King Henry did send for me in post, that I should come over from Germany, I prolonged my journey by *seven weeks the least*, thinking he would be forgetful of me in the meantime."—See Ellis's *Historical Letters*, vol. ii, p. 42.

all control, the scaffold¹⁸ would immediately have reeked with his blood, since, according to an emphatic observation of Sir Walter Raleigh, "if all the patterns of a merciless prince had been lost to the world, they might have been found in this one king." Living, then, as it were, near the den of a furious tiger, ready to spring upon him in any fit of caprice—for the brutal Henry, in some of his sudden acts of passion and vengeance, can only be compared to such an animal—it has ever struck us that Cranmer's protection of the Princess Mary¹⁹ from the wrath of her father, his endeavours to save Sir Thomas More,²⁰ Bishop Fisher, and Cromwell (efforts all

¹⁸ If all the other acts of Henry's life had been free from reproach, his consigning so many of his subjects to a violent death would alone be sufficient to bring down upon his memory the curses of posterity. Lord Herbert marshals the number of his victims in the following order:—"And for testimonies of this kind, some urge two queens, one cardinal (in procinctu, at least) or two—for Pole was condemned, though absent—dukes, marquisses, earls and earls sons, twelve barons and knights, eighteen abbots, priors, monks, and priests, seventy-seven; of the more common sort, between one religion and another, huge multitudes."—See *Life of Henry*, vol. iii, p. 267. And yet Mr. Turner, instead of laying him under ban and anathema for these judicial murders, can invest him with a false and imposing greatness. The honor, however, if honor it be, of endowing him with virtues which his acts prove he never could have possessed, cannot be claimed by this pourtrayer of historical character, since a Mr. Lewis has been beforehand with him in this respect, who has braved all enlightened and impartial criticism in the following delineation of the Tudor king. "Having thus done justice to the ungrateful rebel, the English cardinal, let us return to the English patriot king, whose character I shall recapitulate in few words, with entire impartiality, every article of which is founded upon undeniable facts recorded in this treatise. Henry, then, was a person of great sagacity and judgment, of unwearied application to business, knowing men and how to manage them. Hence that constant harmony with his parliaments, through a reign of almost forty years; parliaments *freely* chosen, freely acting; not bribed, not *bullied*, not biassed by any thing but the native dignity of this prince, his acknowledged prudence, probity, and good designs; deliberate in council, singularly patient and persevering to bring to effect things once resolved on; of considerable learning himself, a friend and patron to learned men, and to every useful and ornamental art and science; social, magnificent, magnanimous; a tender husband and indulgent father; a faithful friend, a generous master; not lewd, not cruel, not voluptuous; an honest, open-hearted man, a sincere Christian, and a patriot king!"—See *The Life and Reign of Henry VIII, or the Patriot King*, by Edward Lewis, p. 242-43. London, 1769.

¹⁹ He is said to have persuaded Henry not to put his daughter Mary to death, which we must in charity hope, adds Mr. Hallam, she did not know.—*Const. Hist.* vol. i, p. 131.

²⁰ His tender heart and abhorrence from blood-shedding propounding

made at the risk of his life), and his stout resistance to the sanguinary enactment of the Six Articles,²¹ or whip with six strings, as it was familiarly called, subjected as he was to trials unknown to ourselves, assume the magnanimity of virtue.

It must, indeed, have fretted his righteous soul, whilst struggling to do the work of God in the most acceptable manner—to spread that word of truth among the people which was given “to be a lantern unto the feet, and a light unto their paths”—to find himself exposed to the rage and malice of those persons who ought to have been the champions of the genuine faith “once delivered to the saints,” instead of the corrupt abettors of idolatrous superstitions. Further, it may be observed, that his patronage and love of letters—for he had a richly endowed and even ornamented mind; the boundaries of his scholarship being not limited to Hebrew, Greek, and Latin only, but extending to the French, Italian, and German tongues—his desire to admit all to a share of that intellectual improvement, which all have an interest in acquiring:²² the moderation,

these politic considerations to the secretary, which were the properest arguments to be used with a statesman, and for him to use and urge before the king, that so he might be an instrument of saving the lives of these men, however they differed from him, and, it may be, were none of his very good friends.”—Strype, *Memorials of Archbishop Cranmer*, p. 28.

²¹ Dr. Lingard affirms that Cranmer wrote an apology to the king for his presumption in having opposed the opinion of his majesty.—*Hist. of England*, vol. vii. But we apprehend that this is wholly a mistake or misrepresentation; for we are almost certain that the learned doctor can produce no authority for this statement.

²² Our age is distinguished by a generous concern for the instruction of the lower classes of the community. At the time of the Reformation the poor man's son, unless he sang in the choir or responded in the services of the church, had not even the benefit of being taught to read. But though Cranmer was the son of a gentleman, and was brought up, as Fox says, “not without much good civility,” yet he rose superior to all contracted prejudices, to all exclusive systems, and nobly advocated the education of the poor. For when it was proposed by some of the Commissioners that none should be admitted to the Grammar School of Canterbury but only gentlemen's children, the archbishop said that “he thought it not indifferent so to order the matter;” “for,” said he, “poor men's children are many times endued with more singular gifts of nature, which are also the gifts of God: as with eloquence, memory, apt pronunciation, sobriety, and such like, and are commonly, also, more apt to apply their study than is the gentleman's son delicately educated.” This whole argument well deserves the attention of the religionist, the philosopher, and the politician, and shows that the Reformers looked to education as the most effectual means of securing the attachment of the people.—See Strype, *Memorials of Archbishop Cranmer*, book i, chap. xix.

judgment, learning, and temper, which he displayed in the compilation of the national creed, are most honourable to his memory, and will command the veneration of every true protestant. Doubtless, there are serious blemishes in the conduct of Cranmer—“he too generally complied with evil counsels,” to use the words of a great philosophical historian, “but nearly always laboured to prevent their execution”—yet, admitting all the distinctions and exceptions taken to his character—yes: if his mind was not of the firmest texture, so that he often yielded to other reformers in the intrepidity which is evinced in confessing the most obnoxious truths, when the great and mighty are combined for their suppression—if there were other traits in his behaviour which are incapable of the ordeal of enquiry—if the saint was sometimes merged in the courtier—if, in short, we cannot write his character in sunbeams—yet all his imperfections will be lost in the remembrance that he was the leader of that small, but illustrious band, whose undaunted zeal for truth consumed them in the fires²³ of martyrdom, and sent up their pure and glorious souls like Manoah’s angel in the flames.

The next attack we have to notice upon our historian was made by a bishop; but never, perhaps, since the Reformation, has any one been elevated to the episcopal office who has so completely disgraced it as Parker, Bishop of Oxford. That see was his reward for the prompt compliance which he manifested to the order subjoined to the second declaration of indulgence published by the infatuated James, who required that it should be read by the clergy in all churches. But this most devoted slave of royal despotism, still more indelibly stigmatised himself, by writing in defence of the doctrines of transubstantiation, and the worship of images and saints; and by accepting the presidentship of Magdalen College upon the expulsion of the intrepid assertor of its rights, Dr. Hough: and to sum up his infamy, he, a protestant bishop, with a profligacy of conduct unparalleled in the history of time-serving, openly and eagerly expressed his willingness to embrace the Roman Catholic religion. They who are sincere in their profession of conscientious attachment to the constitution and doctrines of the Church of England, and who support

²³ The history of the Church of Rome abounds with excesses of party spirit; and Dr. Lingard has seldom been more influenced by it than when he pronounced these sufferings “to be *short*.” We are positively assured by an eye-witness—see *Eccles. Biog. Hist.* vol. iii—and the Roman Catholic historian must have read the paper, that Cranmer held the right hand in the flame a *good share* before the fire came to any other part of the body, not shrinking while it was reduced to ashes.

them—not because they find them established, but because they deem them salutary and scriptural—will assuredly pardon Burnett for treating such²⁴ a character without any deference and respect. The provocation, indeed, which he had received from Parker, was quite sufficient to stir up a ferment of indignation in a bosom less calm and gentle. For this apostate²⁵ from the religion of his forefathers, did not hesitate to say “that the two grand forgeries of making Cranmer appear a mere sacramentarian as to doctrine, and an Erastian as to discipline, were the grand singularities of this history, and the main things that gave it popular vogue and reputation with his party; so that were these two blind stories and the reasons depending on them retrenched, it would be like the shaving of Samson’s hair, and destroy all the strength peculiar to the history.”

In allusion also, to Burnett’s propensity to take a share in discussions—which his antagonists affect to consider solely temporary and secular—we have this observation, which, if we may judge from his triumphant tone, Parker conceives to cut deep, like the former, into the character of the work. “Our author would be well advised to employ his pains in writing lampoons upon the present princes of Christendom, especially his own, which he delights in most, because it is the worst thing that he himself can do, than collecting the records of former times; for the first will require time and postage, but the second is easily traced in the chimney corner.” Burnett’s comments on the foregoing passage, however fully we may concur with him in his opinion of this detestable²⁶ man, cannot justify his appli-

²⁴ By the poet, as well as the politician, this prelate was made

“A figure for the hand of scorn
To point his slow, unerring finger at.”

In that humourous but coarse piece of satire, *The Rehearsal Transposed*, Andrew Marvell designates him under the name of Bayes; while his critical lashes on his ecclesiastical, political, and other performances, are dealt with a most unsparing hand.

²⁵ Even the noted Father Petre alleges it, in one of his letters, as a matter of complaint against Parker, that the quickness of his conversion was not calculated to draw others after him to the old religion.—See *A Letter from a Jesuit at Liege to a Jesuit at Fribourg*, giving an account of the happy progress of Religion in England. February 2nd, 1687–8.

²⁶ We turn with a disgust that amounts to loathing from the utterance of such sentiments as the following, in an English prelate. Upon Parker’s being asked what was the best body of divinity, his answer was, “that which could help a man to keep a coach and six horses was unquestionably the best.” He had exalted the king’s authority in matters of religion to that impious extent, that he condemned the ordinary form of saying the king was under

cation of an epithet which, under any circumstances must be unbecoming the dignity of his profession. “ Who would not think that this period was written by Mr. Lowth, it being so obscure and ill expressed that nothing is plain but the malice of it? But he of all men should be the farthest from reproaching any for writing lampoons, who has now given so rude a one on the late king, and the lords and commons; if bold railing without either wit or decency deserves that name. I will only say this further, that if one had the ill-nature to write a lampoon on the government, one of the several articles in it would be, that it seems writers are hard to be found, when such a *baboon*²⁷ is made use of. It is lampoon enough upon the age that he is a bishop; but it is downright reproach that he is made the champion of a cause, which, if it is bad of itself, must suffer extremely by being in such hands.”

However great might be the estimation in which the *History of the Reformation* was held among the learned on the Continent, it is not surprising that this work should be assailed by the Romanists; especially as the title-page of it, might be deemed by them an offensive declaration of war against the holy Roman catholic and apostolic church as it styles itself. Among the foremost to march to battle against this redoubtable protestant were Varillas and Le Grand, two writers, who would have acquired more fame, even with the learned of their own communion, if they had employed half the zeal and industry to give currency to historical truth, which they used to disseminate their slanders. But, so feeble and ill-directed were these attacks, that their weapons dropped harmless from their hands, or else recoiled with destructive force upon themselves.

God and Christ, as a crude and profane expression, asserting that though the king was indeed under God, yet he was not under Christ, but above him. Another of his most offensive opinions was, that it is better to indulge men's vices and debaucheries than their conscience.—See *Eccles. Pol.* p. 54.

²⁷ Although bishops, even in Burnett's days, were no longer considered as sacred abstractions, he felt that some apology was due to his readers for calling his ecclesiastical superior a baboon, or else he would not have expressed himself in the following manner. “ When the cardinals in Rome go abroad without *fiocco*s on their horse's heads, it is understood that they will then be incognito, and they expect nothing of that respect which is paid them on other occasions. So, since there is no *fiocco* at the head of this discourse, no name nor designation, it seems the writer offers himself to be examined without those nice regards that may be due to the dignity he bears; and indeed when a man forgets what he is himself, it is very natural for others to do it likewise.”—See *An Inquiry into the Reasons for abrogating the Test imposed on all Members of Parliament offered by Sa. Oxon.*

Nothing, indeed, can be easier for Burnett than to refute these opponents whenever they descend into particulars, and quit that declamatory style of abuse, which constitutes their strength, from the confidence with which it is advanced, and the difficulty with which it is disproved. Whenever Varillas is so much off his guard as to hazard any specific assertions, our historian is completely successful in shewing, not only how very weak a foundation they have, but indeed, upon what utter fallacies and entire misapprehensions they rest. These fallacies are the most glaring in Le Grand's attack. What tyro in history, for instance, would be weak enough to believe, on the bare dictum of this historian, that they who made such a noble stand for the outraged rights of conscience and liberty—they to whom we are indebted for a purer form of Christianity, are to be regarded only as false prophets? that none could be more ignorant²⁸ than Thomas Cromwell? and that Lord William Russell—who has left so bright a name in British story—was ever ready to disturb the public tranquillity, and to overturn the fundamental laws of the state? When Le Grand could indulge in these notable extravagances, Burnett may surely be justified for parting with his antagonist in a tone unusually contemptuous; feeling no triumph in his victory²⁹ over one, whose prejudices were so inveterate that he

²⁸ We read in Cavendish's interesting and authentic life of the great cardinal, that upon a bill of articles being brought into the House of Commons to condemn Wolsey of treason, Cromwell "inveighed so discreetly, with such witty persuasions and deep reasons, that the same could take no effect."—Singer's edit. It is also related by Fox, that whatsoever articles and interrogatories the commissioners from the king propounded to Cromwell, when a prisoner in the Tower, "they could put nothing unto him, either concerning matters ecclesiastical or temporal, wherein he was not more ripened and more furnished than they themselves."

²⁹ In one instance, Burnett very properly admits that his opponent stood "upon the vantage ground." "I must confess," observes he, "that M. le Grand has something of reason on his side, in what he says concerning Rodulphus, whom I believed to have been Campeggio's bastard. He proves, however, out of Sigonius, who writes the life of that cardinal, that Rodulphus was his legitimate son. Sigonius is a very good author, and I acquiesce in his authority. But had M. le Grand but cast his eyes upon the English edition he would have seen that it was not without sufficient ground that I called Rodulphus bastard, since I quote the very discourse wherein he was so called,⁵ which was composed by Sir William Thomas, secretary of the privy council, under the title of the "English Pilgrim." I had the misfortune not to have seen the life of that prelate written by Sigonius; so that it is only a fault of omission, which the author would aggravate with a malicious invention.—See Dr. Burnett's answer and vindication of him to Joachim le Grand's *Refutation of the two first books of the "History of the Reformation."*

could not follow truth with a sure and steady step, even when she stood before him to direct his way.

Of the general execution of the *History of the Reformation*, as to accuracy and trustworthiness, there can be no wide difference of opinion among competent judges ; but it will not be difficult to show that Burnett, in some instances, contracted such strong prepossessions for or against particular persons and measures, as make considerable drawbacks upon his claims to a stern impartiality. We will proceed, then, to confirm this assertion by some illustrations ; as, we believe, we have now noticed the principal objections made at home and abroad, against the *History of the Reformation*, during the lifetime of its author.

Although Burnett does not manifest towards the most prominent personage in his history, Henry VIII, that undistinguishing partiality for his character which flashes so broadly and offensively in the pages of a recent historian—who so lauds the king as almost to invest his conduct with the honours of infallibility—there is a strong propensity in the bishop to espouse this prince’s side whenever it can be done with any sort of propriety—to palliate what, in strict morality and justice, every man must unequivocally condemn, and to gloss over the worst excesses of his tyranny “in the most holiday and lady terms.” The indications which lead to this positive conclusion are quite evident in the commencement of the king’s reign, when the subject of the celebrated divorce is introduced to the notice of the reader.

Now, if we are to believe Polydore Vergil,³⁰ the union of Henry and Catharine was a match of policy or interest on the side of the former. Cardinal Pole, however, assures us that Henry sought the alliance, not merely because he respected the virtues of Catharine, but because he was captivated with her female charms.³¹ We have the assurance, also, of the same authority, for the fact that Henry himself admitted to the emperor, her nephew, that his bride was a virgin ; and which receives a very specious and plausible colour from the following circumstance : that Catharine, on the celebration of her nuptials, was dressed in white, and wore her hair

³⁰ *Hist. of the Reform.* vol. i, p.

³¹ “ Ipsam ille supra omnes mulieres appetabat, supra omnes amabat ; hoc sæpe illum dixisse.”—*Apol. Reg. Poli.* p. 83. In his *Apol. ad Car. v. Cæs.* p. 162, we have another sentence to the same effect ;—“ Quam sic initio regni amavit, ut nemo vir erga carissimam conjugem majorem ostendet amorem.”

loose³²—a mode of attire emblematical, in those days, that she was a maiden when introduced to the royal bed. From a letter, also, of Peter Martyr, we learn that Arthur, instead of being the vigorous youth described by Burnett, was deemed incapable of performing the hymeneal rites, from the inherent debility of his constitution. It is impossible, certainly, not to feel some scepticism on this subject; but when we refer to the queen's appeal to Henry, without meeting any denial on his part, *de integritate corporis usque ad secundas nuptias servatâ*, and couple with this appeal the attestations of several grave matrons; and when we are told also that the Bishop of Ely declared before the privy council that Catherine had often denied the consummation *sub testimonio conscientiæ suæ*, one can hardly venture to set up presumptions, even if they were of still less ambiguous or doubtful character, in opposition to the testimony of a woman respected, both at home and abroad, as a wife, by protestant as well as papist.³³

Most historical readers are aware that Burnett is our chief authority for the story of Henry's divorce from Catharine, in which the traces of Providence are so visible.³⁴ And the same proneness is here observable in him to furnish the most plausible arguments for the king's proceedings in this, what is called "his secret matter;" the same tendency to overlook or mistake those facts which are the least favourable to his cause; and to use a leniency of language upon the worst parts of it, which only can be justified on the monstrous pretext that Henry was an exempted being, privileged to remove all the restraints of duty, honour, and humanity, which stood in the way to the accomplishment of his wishes: so that, in his person, crime was to lose its nature.

The question whether his union with Catharine was incestuous, which Henry, after the beauty of Anne Boleyn had caught his affections, very soon brought himself to think, was not only debated upon scriptural grounds, but the fathers, the schoolmen, and the pope's decretals, were all introduced into this formidable and com-

³² See Sandford's *Genealogical History of the Kings of England*, p. 480.

³³ The news of the old Quenis deth ben her divulged, more than x daies passed and taken sorrowfully, not without grevous lamentacions, for she was incredibly dere unto all men for her good fame, which is grete glorye among al exterior nations."—See Ellis's *Historical Letters*, second series, v. ii, p. 76.

³⁴ "How many strange accidents concurred," is the just observation of South, "in the whole business of Henry the Eighth's divorce! Yet we see Providence directed it and them to an entire change of the affairs and state of the whole kingdom."—Sermon on Prov. xvi, vol. i, p. 211.

plicated discussion. If the authors of Scripture, however, were only to be consulted, Henry's espousal with his brother's widow must be supported entirely from those passages in Genesis³⁵ and Deuteronomy, which allows one brother to marry the relict of another, provided that the wife of the deceased brother had no issue by him—a permission granted that, if possible, the elder line of ancestry might be perpetuated. To this passage was opposed the law in Leviticus,³⁶ which prohibits such a marriage. The law and the exception were no doubt intended, by Moses, for the use of the Jews; but whether the law of Leviticus was designed by the Hebrew ruler to be extended to Christians, is very disputable, when we recollect that Jesus Christ approved of the exception in Deuteronomy in his answer to the Sadducees, who had proposed that law to him. From the circumstance, however, of Christian monarchs having adopted the Levitical law into their respective codes, Henry's marriage with his brother's widow was naturally enough considered as a very unusual case, if not without precedent; but there were the bull of Pope Julius II, and the decision of the king's council, to sanction the union; and so little did the highest authority of the church question the validity of this dispensation, that he goes the length of declaring that the marriage would be lawful even if the nuptials of Arthur and Catharine had been consummated. Burnett and other defenders of Henry's cause, of course, make light of this dispensation; but the reasoning appears to us very defective which would withhold from the head of the church the power of dispensing with a regulation which, in all likelihood, the church framed for its members. Burnett, too, acted as wisely in disregarding this dispensation, as in his circumstantial account of the completion of the nuptials of Arthur and Catharine; for it could scarcely escape the common sense of our

³⁵ “ And Judah said unto Onan, Go in unto thy brother's wife, and marry her, and raise up seed to thy brother.”—GEN. chap. xxxviii, 8. “ If brethren dwell together, and one of them die and have no child, the wife of the dead shall not marry without unto a stranger; her husband's brother shall go in unto her, and take her to him to wife, and perform the duty of an husband's brother unto her.”—DEUT. xxv, 5.

³⁶ “ Thou shalt not uncover the nakedness of thy brother's wife: it is thy brother's nakedness.”—LEV. xviii, 16. Calvin has endeavoured to account for the discrepancy between DEUT. xxv, 5, and the text just quoted, by interpreting the word brother as a near kinsman; but there is too much of hypothesis and assumption in this explanation for any confidence to be attached to it. Before we arrive at this result, we must get over the case of the seven brethren mentioned in the gospels, which every one must see is impossible.

historian that, unless there was a marriage in fact, Henry's plea for a dissolution of the contract between himself and Catharine, on the ground of a scrupulous conscience, must have been done away with entirely. Very evident, however, does it appear to us, that if Henry had never gazed on the loveliness of Anne Boleyn, he never would have agitated the lawfulness of his first marriage. Burnett, then, sets himself to swim against the stream of public opinion, when he endeavours to persuade his readers that the cause of Henry's remorse for his first nuptials was occasioned by Thomas Aquinas,³⁷ the king's favorite author, who held the Levitical law to be of moral and permanent obligation. The "angelic doctor," as he is styled by the disputants of the schools, and who is said, by a modern historian, to have "the rare merit of combining great perspicuity and purity of expression, with all the refined distinctions and speculations of the schoolmen," no doubt served him with arguments and quirks how best to support a bad cause; but his dictum would not have weighed a feather with Henry if his licentious passions³⁸—if the queen's being six years older than himself, unlikely to bear him any more children, and her person disagreeable to him, from the many infirmities to which she was subject, had not first been virtually subversive of those memorable words of our Saviour, "and I say unto you, who-

³⁷ Turner, *Hist. of England*, vol. ii, p. 533. The writings of that voluminous author ("ses ouvrages," says Dupin, "composent 17 tomes, in folio"), were so popular among the ultra popish party, as to become a sort of textu-ary with them. Dean Colet, a *nomen memorabile* with us, appears to have formed more sound conclusions respecting this oracle of the schoolmen. "I said somewhat more in praise of Aquinas: he (Colet) looked wistfully upon me, to observe whether I spoke in jest or earnest: he raised himself into some warmth, and said, "why are you so fond of commending that schoolman who, without a great deal of arrogance, could never have reduced all things into such positive and dogmatical definitions; and without too much of a worldly spirit he could never have so much corrupted and defiled the pure doctrine of the Gospel with his mixture of prophane philosophy. I admired this freedom of Colet in censuring the head and father of the Thomists, and it made me look a little more narrowly into the writings of that celebrated schoolman, which, when I had done, it abated very much of my former esteem for him."—Knight's *Erasmus*, 49.

³⁸ Every check he received to them only gave additional intensity to his desire for their realization. His pen was incessantly in his hand on the affair of his divorce. Besides being in continual correspondence on this subject with his ministers at home and abroad, he composed a short treatise on the Levitical degrees, to shew the unlawfulness of his marriage. Alluding to his performance in one of his letters to Anne, he says, "that his book maketh substantially for his purpose, and that he has been writing it four hours that day."—Hearne's *Avesbury*, p. 360.

soever shall put away his wife, except it be for fornication, and shall marry another, committeth adultery—words to which the Dominican friar, and the rest of the canonists, jurists, and divines, consulted on this occasion, could, with all their latitude of interpretation, attach no other meaning than this, that the nuptial bond was indissoluble, when not violated by adultery. Upon Pope Clement resolving not to be accessory to the degradation of Queen Catharine, Henry ventured upon the perilous experiment of obtaining the opinion of the universities of Europe,³⁹ as to whether a brother may lawfully marry a brother's widow. And, that they might respond in the negative, money was plentifully distributed among them by his agents. In one of his letters, Clement asserts that the most undue influence was used with these public bodies to bring them over to the king's cause. Burnett, however, is anxious to demonstrate to us that no bribes ever touched the hands of these foreign doctors. In his proofs, among other flaws, is this: that he himself allows that some of the cardinals were bribed by Henry's ambassador, both in 1528 and in 1532. Burnett, also, can yield so far to his own prejudice as to disbelieve that the king menaced the universities, in case of their not subscribing to his wishes. But it would have been any thing short of insanity to battle with such a being for conscience sake, after three such letters as they had received from him; for had they been more fixed than they were in their attitude of defiance, one of these epistles, considering the character of the writer, would have been quite sufficient to awe them into complete submission. That the decision of these learned doctors, had no effect in lessening the aversion of the women of England to the divorce, the consciousness of which is said to have been so annoying to Henry, is quite evident from the following passage of Hall:—"All wise men in the realm much abhorred that marriage; *but women*, and such as were more wilful than wise or learned, spake against the determination, and said that the universities were corrupt and enticed so to do."

We are almost afraid that the candid enquirer, solicitous only after truth, will be apt to suspect that Burnett's treatment of Catharine's noble and affecting speech before the papal legates as a fiction, is assignable to no other reason than that it makes his hero the exemplification of everything that is unfeeling in tyranny. For the story of her behaviour on this occasion, which is immortalized by

³⁹ Most readers must be aware that the credit is usually ascribed to Cranmer of having first given this piece of advice to Henry; but, according to an authority in Wordsworth's *Eccles. Biog.*, p. 437, it is due to Wolsey.

our Shakespeare, we have the authority of Cavendish and Hall.⁴⁰ Burnett, however, in his supplemental volume, discredits their statements on the authority of the original register of the trial, showing that the queen never came into court but once, June 18th, 1589, to read a paper, protesting against the jurisdiction; and that the king did not appear at all. But our historian here has fallen into an important oversight; by forgetting that he has printed a letter in his first volume, in which Henry says, "on that day we and the queen appeared in person," and he adds "after her departure was thrice preconisate, and called eftsoons to return; and on her refusal, a citation was decerned for her appearance on Friday next."

A broader mark for censure Burnett set up for himself by passing over in silence the inhuman denial of Henry to his divorced wife, to see their daughter before she breathed her last;⁴¹ from whose society she had been separated, that Mary might not become infected with the errors of popery. Well might the blameless Catharine exclaim, in one of her letters to Mary, "that we never come to the kingdom of God but by troubles."

The assertion that Mary Boleyn, the elder sister of Anne, was one of Henry's mistresses, is stoutly denied by Burnett. He unceremoniously designates it "as a forgery of Cardinal Pole's, which Sanders caught to dress up the scene." Now, the assertion is such an enormity that, before it be admitted, the presumption for it ought to be most conclusive. Mr. Hallam and Sir James Mackintosh both concur in procuring a verdict in favour of the king: but we have the misfortune to differ from these high authorities.

⁴⁰ When Henry perceived the powerful impression which she had made on her auditors, we are told by Hall, who was present, and who declares that "he gives the king's words as near as his writ could bear them away," that this was his reply. "I assure you all she is a woman of most gentleness, of most humility, and of buxomness, yea, and of all good qualities appertaining to nobility, she is without comparison, as I this twenty years almost have had the truest experiment. So that if I were to marry again, if the marriage might be good, I would surely chuse her above all other women." This last sentence must have cost a very severe effort to the Legatine judges, to restrain their countenances from mutual expressions of incredulity.

⁴¹ "Cum hoc idem filia cum lachrymis postularet, mater vix extremum spiritum ducens flagitaret, quod hostis nisi crudelissimus nunquam negasset, conjunx a viro mater pro filia, impetrare non potuit nec hanc quidem consolationem, in extremo spiritu dare voluit."—*Poli. Apol. at Carol.* Yet could that miracle of conjugal meekness and attachment thus address a note on her death-bed, to the destroyer of her health and happiness: "To her most dear lord and king."

True it is, that the evidence of the connexion between Mary and Henry rests solely on the authority of Pole, whose disposition to calumniate the king, and to heap the most ignominious terms on the two sisters, were equally manifest, and which his exiled condition permitted him to do with impunity. But still, as Pole's character has descended to posterity, if not endowed with the highest virtues, free, at least, from the suspicion of knowingly publishing any falsehood; we should almost be led to infer, from this fact alone, that there are very sufficient reasons for believing his assertions⁴² that Henry first seduced Mary, and afterwards retained her as his mistress, ignorant as we may be of the precise time of this connexion.

There are, likewise, other circumstances of such strong collateral evidence, as incline us to admit the trust-worthiness of the cardinal's testimony on this occasion. Mary had a striking proof before her, in the person of the Lady Elizabeth Tailboys—who was afterwards married to Edward Lord Clinton—that to be the mistress of the king had no other ill effect but to encourage the growth of ambitious feelings. The issue of this unlawful amour was a son, whom his royal parent made a knight of the garter, and called him Lord Henry Fitzroy, when little more than six years old, and afterwards, successively created him Earl of Nottingham, and Duke of Richmond and Somerset. "Nor were these all the favours," says Heylin, "intended to him, the crown itself being designed him by the king, in default of lawful issue, to be procreated and begotten of his royal body." To imagine that these splendid results of a licentious passion had no tendency to impress Mary with the conviction that unlimited obedience to the wishes of her handsome sovereign⁴³ was the duty of the subject, is to forget the frailty of female nature, and to forget also that the period the least favourable to domestic virtue is the reign of a king "whose brutal lusts spare no woman that is the object of it."

⁴² Dr. Lingard observes, in a note, "that the reluctance of Burnett to acknowledge Mary as one of the king's mistresses must yield to the repeated assertions of Pole, in his private letter to Henry, written in 1535." In the latter part of this assertion, the doctor has committed a great mistake. It was not in a private letter, but in his work on the unity of the church, addressed to Henry himself, and penned by his express command, that he made the charge against him of having debauched Mary Boleyn.

⁴³ "As all recommendable parts concurred in his person," says Lord Herbert, "and they again were exalted in his high dignity and valour, so it must seem less strange if, amid the many fair ladies which lived in his court, he both gave and received temptation."—*Hist. of Henry VIII*, p. 175.

Perhaps it may be argued that the silence of Henry and of contemporary writers—with the exception of one, a decided enemy to the whole race of Boleyn—ought to turn the scale against an hypothesis so insulting to that family. But, if under a free government it is not always safe to arraign the character and vices of its ruler, under an absolute monarchy, such as ours was in the time of Henry, the court chronicler or satirist, with great reason, might dread that the slightest insinuation against royal seduction, and the fickleness of royal attachments, would be punished with the forfeiture of his head. Nor does the well-known circumstance of Anne's determination not to fluctuate between the state of a wife and the shame of a concubine, at all lessen the credibility of her sister's fall; since it would more powerfully impress the salutary caution on her mind that, however dangerous it might be to resist, it was only by a steady course of resistance, by being "cunning in her chastity," to use a quaint phrase of Fuller, that she would realize her ambition of becoming Queen of England.⁴⁴

⁴⁴ Pole was afraid even to trust himself to the friendship of Henry; yet while he admits that Anne preserved her virtue to the last, or at least to the last year, he grudges to allow her any merit, when she is entitled to the highest, for having so long maintained her honor against the incessant opportunities and importunities of the lustful king." *Concubina enim tua fieri, pudica mulier nolebat, Uxor volebat. Illa cujus amore rex depirebat, pertinacissimè negabat sui corporis protestatem nisi matrimonio conjunctam, se illi unquam facturam.*—*Poliad Reg. Scot.* p. 176.

M.R.S.L.

(To be concluded in our next number).

ROBESPIERRE ;

HIS PRINCIPLES AND CHARACTER.

THOSE whose opinions are opposed to the French Revolution frequently express their abhorrence of it by pronouncing the single word *Robespierre*. Those, on the other hand, who entertain more favourable views of that great convulsion, identify his name with the calamities and bloodshed attending it, which, however, they conceive, are also to be ascribed to the profligacy of the aristocracy, the intrigues of courtiers, the unconquerable vanity of the nobility, and the despotic interference of foreign courts.

Robespierre, indignantly disowned by all the conflicting parties of the day, each of which desired to stigmatize its opponents by thrusting him into their ranks, stands alone in terrific solitude amidst the agitated masses of the Revolution : he who, nevertheless, when in the zenith of his power, controlling the destinies of men, was ardently adored by some and countenanced by all. His habits, pursuits, and disposition, not assimilating with those of his contemporaries, Robespierre may be said to have been the only chief who, though not identified with any party, directed the great revolutionary torrent. This will be apprehended more easily when we compare the man with the elements by which he was surrounded ; the projects he contemplated, with the means employed to carry them into effect ; and the ultimate consequences which followed them. The unbounded esteem with which he was regarded by his adherents, and the execration attached to his name in the pages of history, when duly considered, can scarcely fail to assist the impartial inquirer in forming a just opinion of his character and designs, at the same time that it may, possibly, in some measure, relieve his memory from the most serious imputation of having wantonly deluged the country with the blood of its children.

The passions of the head, as displayed in the youth, formed likewise the prominent and characteristic feature of the man ; for so those ideas may be designated which, like deep-rooted sensual inclinations, exercise an uncontrolled sovereignty over the will, acquiring strength slowly, yet by sure and certain steps. The passions of the head, concentrated as they are within the range of the thoughts and imagination, are imperceptible ; while the passions of the heart take root in practical life, amidst the intercourse of a boisterous world. Again, the passions of the head are instant in their effects,

there being but one step even to madness itself ; while the passions of the heart insinuate themselves by degrees into the system, first giving rise to mere thoughtlessness and errors of a pardonable nature, but by a thousand gradations, scarcely perceptible and still less noticed, leading the unhappy victim to commit crimes of the most heinous description.

Fabulous statements, impeaching the conduct of the youthful Robespierre, were eagerly sought after, and made available, by way of inference, in accounting for the bloodthirsty and atrocious crimes of his manhood ; but even in those days of anarchy and degeneracy when fierce party spirit was indulged to excess, and malignant calumnies were freely circulated, his most inveterate enemies in the Constitutional Assembly cast no reproach on him : indeed, the most scrupulous and searching inquiries, instituted after his death, revealed nothing authentic regarding his private life. All that has been satisfactorily ascertained, with respect to the early days of Robespierre, is, that he was born at Arras, where his education was superintended by a person celebrated for his talents, but who took no part in the Revolution ; that he was distinguished as well by intense application to his studies as by the integrity of his conduct, subsequently taking his rank among the most eminent lawyers there, and being remarkable for loyalty, activity, and disinterestedness in his professional pursuits. His social intercourse was confined to the fathers of the oratorio, with whom he usually dined once a week, and conversed on literary topics.

Robespierre is described, in a collection of memoirs* published before the Revolution, under the title of *Memoires Secrets*, to be a young, eloquent, and talented lawyer, who was sure eminently to distinguish himself in his profession. At the age of thirty, he was elected, by the community of his native place, deputy to the States Assembly, who commenced their proceedings in 1789. The very first words he uttered on that occasion breathed forth the purest and most determined republicanism, which pervaded every act and thought of his subsequent life : indeed, he eagerly sought opportunities to promulgate these his opinions, especially during discussions touching the introduction of a constitutional monarchy. At first the ministers of the crown disregarded him, holding out neither bribe, nor other inducement, to his becoming a convert to their party ; but when they afterwards needed his co-operation they were

* *Toulangeon piéces justificatives*, in the second volume of his *History of the Revolution*.

astonished to find his political honesty impregnable, and that his principles were not, in the slightest degree, to be shaken. Charles Elie Marquis de Ferrière, who was decidedly hostile to the Revolution, makes the following observations in his *Memoires*, with respect to the character borne by Robespierre at this period. "Some were of opinion that he acted from conviction; and even those who were opposed to him believed that he was an honest man, attributing to inexperience of the world, and non-acquaintance with the economy of governments, those crude notions by which he confounded law with despotism, and liberty with licentiousness. It is true," he adds, "that those best informed on the subject considered Robespierre to be a scoundrel, influenced entirely by selfish motives, &c.:" but personalities have been invariably substituted for arguments by the representatives of factions; consequently, the sources whence this unfavourable deduction was drawn are no where discoverable. By a resolution of the Constitutional Assembly, which Robespierre much contributed to carry into effect, the members of that body were rendered ineligible to the *Legislative* Assembly, which was about to supersede it; and Robespierre, having declined offers of many valuable appointments under the government,* returned to Arras as poor as he had left it in 1789. This circumstance alone clearly demonstrates the sincerity of his professions, affording also a most convincing proof that his vision, as to the future, was by no means obscured, and that he could anticipate coming events with greater facility than those who exulted in a more extensive experience of the world.

The circumstances which enabled Robespierre to establish himself in supreme power on the 31st of March, 1793, are too well known to need repetition in this place; but it will nevertheless be desirable to ascertain, if it be possible, the specific influence which he exercised over his fellow-countrymen; all who attentively watch the progress of events, during his reign of terror, being forcibly struck with the apparent inadequacy of the means at his command to effect the object which he endeavoured to attain: the question, then, is, What sort of influence was his? Bailleul† says, "It is a question which will puzzle all historians." This observation may be just as regards those historians whose researches extend no further than to define the engine, in its practical and external sense, by which whole nations are set in motion; but we shall make an

* Bonnet, *Essai sur l'Art de Faire les Révolutions Utiles*.

† In his work on Madame de Staël.

effort to solve the point, by dealing with it in its more comprehensive character. Thus, the inquiry presents itself, Who was this mysterious man, and how did he rise paramount over his contemporaries? He was deficient in those personal attractions which impose upon the senses, as well as in those brilliant talents which seduce the understanding. He possessed neither those virtues by which the esteem of others is ensured, nor were his vices, before his ascent to power, of so odious a description as to constitute him a mere votary to crime. Yet the weight of his popularity infinitely exceeded that possessed by all those who could boast of an indefinite proportion of these powerful allurements.

The noble and frank features of Lafayette, the blooming youth of Lamotte, and the graceful figure of Barrere, failed not to ensure a hearty welcome whenever they presented themselves, during their harangues, before the people. But far otherwise was it with Robespierre, whose repulsive exterior formed but too conclusive an index of his inward man. His stature was stunted, and his figure slender, moving with a graceless and irregular gait, sometimes with rapidity, at others with particularly measured steps. His was the very countenance to which Julius Cæsar was known to have entertained a strong and unconquerable aversion : with an eye ever restless, betraying an austere and crabbed disposition, yet not exhibiting sufficient firmness to encounter that of a foe, his complexion was sallow and bilious, his features being entirely devoid of expression, and never animated or flushed by mental impulses. He was incapable of assuming either the grand and imposing attitude of the lion, or the awful and terrific crouch of the tiger ; but, like the irritated viper, he was merely repulsive. Add to all this a certain foppishness of dress, worthy of a courtier, and calculated to disfigure even a handsome man, and Robespierre's picture is complete. Yet are we tempted to overlook these his follies, whilst contemplating the courage and energy he displayed, even whilst indulging these vanities, at a period when innocence found safety only by encircling herself in the lewd and disorderly garb of debauchery, and wealth protection, when clad in the disgusting rags of indigence. He alone appeared in public well-dressed, clean, and adorned with all the fashionable fineries of the banished nobility. Whilst Condorcet found it necessary to remind the tribunes that " he too belonged to the Sansculottes," and Marat thought it expedient, in order to maintain his popularity, to appear in the Chamber of Deputies, clothed in a tattered frock coat, in wooden shoes, with his head enveloped in a dirty handkerchief, and, stretching himself on the benches, used vulgar

language and low wit, as suitable to his appearance, Robespierre was attired as a modern dandy, and played the part of the king of the Sansculottes.

Robespierre's eloquence was as little calculated to command attention as his external appearance. The inexhaustible flow of grand and exalted ideas for which Mirabeau was distinguished, the attractive energy with which Barrere spoke, and the masterly elocution of Vergniaud, were unknown to him. Robespierre spoke with violent gesture of manner, but in other respects without animation, occupying much time in delivering his sentiments, which were, on that account, not the less incomprehensible, and evincing but a scanty supply of thoughts, more attributable, it is presumed, to the predominance of some fixed ideas, than to ignorance or tardiness of perception; and the events of the Revolution, as connected with himself, being the topic on which he dilated with tedious uniformity. He ranked only amongst the third or fourth-rate speakers whilst a member of the Constitutional Assembly. Yet, in perusing his speeches, we discover many passages exhibiting a high order of eloquence, and discovering such astonishing penetration, as to the future state of the Republic, as to induce us to impute to stratagem and sinister views the obscurity in which he frequently involved his expressions, namely, that he might, in the first place, fatigue and confuse his auditors, and then, by bursting with the rapidity of lightning on their imaginations, rivet their attention with some novel proposition, which he would have failed to enforce by a less energetic appeal to their feelings and passions.

Many clung to Robespierre with a degree of enthusiasm little removed from adoration; but no one regarded him by the closer ties of esteem, or with the warmth of private friendship—feelings which he himself considered ephemeral, to be sported with in the game of life as occasion might suggest, but which were allowed no place within his own breast. He possessed sufficient power to inflame the head, but the heart that approached him shrunk back wounded and alarmed by his chilling reserve. His sister's letters,* found after his death, furnish melancholy proofs that the mind of that singular man, half maddened by strange notions respecting the organization of society, became utterly callous and indifferent to the pangs which he inflicted even on the susceptible feelings of a woman, her tenderest attachment being neither heeded nor understood. Fanaticism deadens the heart, as depravity blunts the senses. If,

* Reports of Courtois.

however, it be true* that, having once loved, his advances were rejected, it is not quite so surprising that the tender feelings of nature were not again permitted, by a person so reserved and sullen, to interfere with his grand objects.

Holding no opinions in common with his contemporaries, and in no wise consulting their tastes or desires, he did not even participate in those vices which were calculated to gratify the popular taste. The covetous did not find in him an Orleans, nor the ambitious a Bonaparte: his proceedings thwarted the plans, and confounded the projects of the wicked, and enshrouded the hopes and views of the virtuous in midnight darkness. Gold had no power over him; so that the people honoured him by the appellation of the "unpurchaseable"—a title to which his bitterest enemies dared not dispute his claim, and to which posterity will attach more importance than to the high-sounding title of majesty itself, when borne by a despotic monarch. He died at Paris, in the same indigent circumstances in which he had arrived there, the state of the national treasury bearing ample testimony to the disinterestedness with which he administered its affairs, at the very moment when Courtois, trying his skill in the rostrum, painted—the then defunct—Robespierre in the most odious and hateful colours. Every portion of the moveable property of those who breathed their last on the scaffold was found untouched, and in the same state as when first confided to Robespierre's care; so that it was scarcely necessary for the respective claimants minutely to describe the effects themselves, but merely to specify the cover in which they were enveloped, to insure the safe return of the most trifling article.

He was sober and industrious, and his morals were strict even to severity. He was not idolized by the bon vivants, neither regaling his adherents, as Danton was wont to do, nor entering with them into the mere sensual enjoyments of life. The dwelling, table, and dress, of the ruler of France, were of the same humble and unpretending description which characterized those of the poor lawyer of Arras. He lodged and boarded with the family of a cabinet-maker, Dupleix—who, we believe, is still living—in the street St. Honore, not far from the Church of the Assumption.

At a time when the higher classes, in their base hypocrisy, were engaged in kindling the torch of civil war, through the instrumentality of a religion in which they themselves placed no credence—

* *Memoires historiques sur la vie de Suard, etc.*, par Dominique Joseph Garat. Paris, 1820.

when the bishops excited the people to discord and dissension in their pastoral epistles—when Chaumette published his religious creed, and Jacob Dumont taught atheism—Robespierre's religious tenets were rigorous even to superstition, though he did not conform to the discipline of his own church. He outlawed all disbelievers in the supreme power and moral influence of God; and on one occasion only was his dark and forbidding visage known to shed forth one ray of light, namely, when he proclaimed, at the head of the National Convention, the existence and dominion of a Supreme Being.

This religious zeal, however, was but ill calculated to arm its possessor with authority amidst tumult, outrage, and fierce party contentions, when men were borne along in masses, as if by a gregarious impulse, under the influence of the popular cry—at such a period, a resolute front is needed more than deliberation, and personal courage is far more efficacious, in checking the excesses of the multitude, than brooding over or planning enterprizes on paper or in the cabinet. Of that personal courage Robespierre was utterly deficient. It is true, he possessed fortitude of the head to an almost unlimited extent—if we may so term that inflexible and unrelenting stubbornness of purpose which urges on to the execution of any project, however horrible in itself, or perilous in the undertaking; but to that courage of the heart which bravely encounters physical dangers, and rouses the dormant energies of the multitude in leading them to action, where success depends upon might, and not upon argument, as we have before said, he was an entire stranger. It is this personal courage which enables men even of indifferent talents to gain a ready ascendancy over, and to subdue the most tumultuous assembly. The possession of this qualification, in an eminent degree, obtained for Thionville and Danton an equal share with Robespierre in the affections of the people. There is only one opinion with respect to Robespierre's cowardice. At all seasons of extreme peril—such as the 21st of June, 10th of August, &c.—he secreted himself from the public view, the movements of the people being directed by men possessing a greater share of courage. No sooner, however, had the blood ceased to flow and the tumult subsided, than he again placed himself at the head of affairs, assuming all the importance and authority of one who had just then distinguished himself by his bravery, and to whose generalship and strength of arm the success of the day was attributable, those who had in reality borne the heat and brunt of the battle, being treated by him merely as subordinate officers.

The projects and desires of Robespierre were as little compatible with the inclinations and tastes of his people, as the measures he adopted were ill calculated to invest him with the sovereign authority, which he nevertheless succeeded in obtaining. There was no apparent unity of purpose between his contemporaries and himself; and no sooner was the veil withdrawn, by which his real objects were concealed from their view, than his fall was doomed; and then, as if ashamed of their puerile submission to the will and dictation of a man of low degree, whose objects and desires they neither partook of nor comprehended, they sought escape from their disgraceful position by misrepresenting the feelings by which Robespierre was influenced, involving his character and designs in dark obscurity, by which history has sustained an almost irremediable injury, and readers have been hitherto grossly misled and deceived on this most interesting and all-important subject.

The prevailing opinion appears still to be, that the (so called) *Reign of Terror* was of a negative character, abrogating all laws, giving rise to unlimited indulgence in licentious passions, and gross individual depravity, and breaking asunder the bonds of social order. But whatever may have been the disposition of the multitude, and however immoderate the excesses into which they plunged, it is clear that Robespierre did not enter into their feelings, and still less was his conduct influenced by their views. And, indeed, why should Robespierre attempt to demolish all the restraints of morality, who never felt their salutary influence? Why should he, who never indulged in corrupt and unrestrained revelry, either for his own gratification or to suit party taste, break down those protecting barriers which, whilst they sustain the vast fabric of society, restrain men within the sphere of a safe familiar intercourse? Again, how was it possible for a man to countenance these licentious indulgences, who considered every free and uncontrolled exercise of the will by others as tending to anti-revolutionary principles, regarding, at the same time, his own judgment, not only as infallible, but as being on a level with, if not superior to, the law itself? So far was the Reign of Terror from favouring, that it actually put a stop to those depraved and lawless habits of the people which had prevailed from the 10th of August. Robespierre did not introduce or promote anarchy and wild commotion as a part of his system; but by a decree, levelled against all suspected persons, carried in the Assembly of the National Representatives, after the destruction of the Girondines, he called forth a civil war novel in character, frightful in detail, and fearfully devastating in its effects, which, extending

itself into every province, town, and village, nay, even into every family, found therein its ready supporters, as well as its victims. In this instance, likewise, the fanatic seems to have anticipated future events with an instinctive foresight surpassing his coadjutors of the Assembly, who, after having assisted in bringing it into being, fell, by their irresolution, victims to their own decree. Indeed, every revolution is more or less a civil war, which, in its turn, readily assumes the character of, and engenders, a war of extermination, whenever it owes its origin, not to clashing interests, but to a difference of opinion. All attempts at reconciliation are then in vain, inasmuch as the process of political chemistry admits only, in that case, of the entire decomposition of the parts, not to the combination of the constituents.

That decree, by which the whole population of France was separated into two large and hostile bodies, the Patriots and Anti-revolutionists—ordaining that the former should be placed in surveillance over the latter—whilst it gave rise to hatred, suspicion, and bitter animosities, most effectually disarmed justice of its power and efficiency. Even the more discreet and sober-minded members of the Convention, as well as of the other ranks of society, contemplating the Revolution as the fore-runner of a war of extermination, which would necessarily involve the national rights, and assumed prerogatives of individuals, in fierce contention, imagined that, by giving effect to that decree, they would best afford protection to the former against the latter; and though they quickly discovered that thousands of well-disposed and peaceable persons were being sacrificed to the jealousy and strife to which it gave rise among the multitude, who betook themselves to arms, and resorted to violence, not so much from a deliberate conviction of its expediency as by their uncontrollable passions, yet were they impressed with the necessity of opposing to an attack so violent an equally forcible defence.

No disorder could arise from this state of affairs, which resembled a war superintended by the government, whose agents, the tribunals and the popular societies, being invested with unlimited power, calmed the public disposition to riot and outrage, superseding the necessity of, and surpassing in effect, well-disciplined military interference. These all-powerful revolutionary tribunals and societies were placed under the superintendence of the (so called) Committee of Safety; and Robespierre directed the proceedings of that body, of the Convent, and of the Club of the Jacobins. *The Reign of Terror* must not, therefore, be considered as the characteristic

feature, but as an unavoidable consequence, arising out of the French Revolution.

It was Robespierre's *person* which marked the revolutionary struggle we are detailing with the peculiar stamp of *terror* which it then, for the first time, assumed, as distinguished from that which has been designated, through all ages, and in all countries, by the simple appellation of civil war and party fury. Madame de Stael said there was something awful about Robespierre, which inspired the public with imaginary fear of a deeper shade than was produced even by the cruel measures of government. But it was Bailleul who hit upon the most suitable appellation for that infernal period, which existed only so long as it bore the stamp of an enigma ; but no sooner did the Convent enter into the views of Robespierre, and solve that political problem, than the author, not unlike those monsters of whom we read in fairy tales, breathed his last, and vanished from the stage.

"Robespierre based," says Bailleul, in his *Exam. &c.* "the regeneration of society upon these two foundations—equality, and sovereignty of the people. Virtue, in the most comprehensive acceptation of the word, according to his interpretation, constituted the true essence of democracy ; and as he included amongst the opponents of virtue all those who derived any advantage from the abuses of a corrupt government—all selfish wealthy persons, the immoral poor, the unduly ambitious, and all those who were inimical to popular measures and equality—it naturally became a part of his system not only to cleanse society from these vices, but to exterminate the individuals in whom they had taken root. No sooner had Robespierre established this preliminary axiom than he inferred, with logical rectitude, that in peaceable times it is virtue alone which constitutes democracy, but that at revolutionary periods, and during civil war, terror must be added to virtue, in order to insure the uprightness of democracy. Terror, without virtue, would, therefore, prove as fatal, as virtue, without terror, would be powerless : terror being nothing more than strict, rigorous, and instant justice, as derivable from virtue itself.

"Robespierre," continues Bailleul, "being convinced of the sublimity and perfection of his views, in no wise resembled any of his coadjutors of the Revolution. They felt that they were opposed to an almost overwhelming storm, but nevertheless consoled themselves with the belief that the political fever would cease with its cause, while Robespierre, cool, calm, and collected, felt that he was in his natural element. He imagined that he could already discover vir-

tue gaining ground among the people ; and the innumerable victims which were everywhere presented to his view, made no other impression upon his feelings than as so many proofs of the rapid advances made by virtue, accounting himself a being who was sent into the world to become the lawgiver and teacher of nations. Hence his calmness, self-possession, and that mysterious *quelque-chose* in Robespierre, with which Madame de Stael was so forcibly struck."

The enthusiasm which had thus taken possession of Robespierre's mind, regarding the sublimity of his projects and mission, was not modified by experience and knowledge of the world ; and though all his contemporaries were, in some measure, infected by these chimerical delusions, they were nevertheless unable to comprehend their purport, and thus became his victims, instead of being, as they themselves imagined, his auxiliaries. Resolved to carry into practice those projects which he had some time meditated, and lending a willing ear to the denunciations of intriguers, by whom he was constantly surrounded, he prosecuted all those who bore meritorious distinctions, or who had risen to eminence in the country, as being derogatory to equality. In the Nivorse of the year II, he destroyed the last bulwark of innocence, and became the head of the *Gorgon* to all classes of society. There was not a single individual, suspected of any crime whatever, who was not arraigned before the bar of justice, as "an offender against the equality and sovereignty of the people"—a form of accusation used indiscriminately against all persons, whether pickpockets, prostitutes, burglars, or men of elevated rank of society : all were classed under the law of conspiracy against the people ; manifesting, at one view, the frightful and appalling extent to which the system was carried, and exciting the astonishment even of his own associates.

This state of affairs was but ill calculated to last ; as soon, therefore, as the system was understood by the nation, Robespierre, in desiring to realize what, in fact, was impossible—a sort of tribunal over the consciences of men, whereby moral failings were to be punished as if they had been political crimes—at length perceived that the bloody massacre in which his hands were imbrued, and the numberless victims who were daily sacrificed under the rigour of his principles, had excited the disgust of society, which no longer concealed its abhorrence of his projects ; and that the people, whose rights he was apparently engaged in defending, were inimical both to his person and views. This revelation excited his indignation, his suspicions henceforth having no limits, and his accusations being

directed against all whom he suspected of differing from him in opinion ; in short, he withdrew all confidence, even from his coadjutors, his fanaticism being now converted almost into madness. The members of the government, beholding with dismay the grievous evils which they had been instrumental in inflicting on the wretched nation, perceived, with fearful forebodings, that they also must sooner or later taste of the bitter cup which had been so deeply partaken of by their fellow-countrymen, if Robespierre was permitted longer to pursue his demoniac course.

Three-fourths of the nation, observes Bailleul, were already placed upon the proscription list when, happily for the country, Robespierre fell without even being arraigned at the bar of justice.

It is melancholy to reflect that the horrors of Robespierre's system experienced no check so long as victims for assassination were selected from the humble classes of the people, and that their author was doomed only to atone for his crimes, when the rich, covetous, and ambitious ranks of society, were included in his death warrants.

The whole of Robespierre's career—the Utopian Republic he intended to create, the calamities with which he oppressed the nation, and the manner in which he finally expiated his offences—are so explanatory of his most peculiar views, and of the motives by which he was actuated, that we need not have recourse to mere suppositions, which in no way elucidate doubts, or to inferences which in themselves may be contradictory.

The chief imputation cast on Robespierre, by his enemies, at the time of his downfall, was, that *he aimed at the dictatorship*—an accusation assuming “guilt against the equality and sovereignty of the people ;” by which they not only turned the edge of his own weapons against himself, but were enabled more satisfactorily to account for their former acquiescence in his views, as well as to make known their present disapproval of his projects. It is perfectly clear that Robespierre did not *aim* at the dictatorship, inasmuch as he already exercised it, though in a manner widely differing from the generality of despots. He resembled the founder of a *sect* more than of a *faction*, considering himself to be the reformer of abuses, the inculcator of virtue, and the revealer of a new system of policy !

A report was at one period prevalent, in Paris, that Robespierre contemplated marrying the daughter of Louis XVI. The overweening vanity of that man must indeed have been excessive, and his self-esteem of a truly exalted character, to render such an event even *probable*, in the estimation of his contemporaries, though we confess we encounter no great difficulty in reconciling to our

comprehension a union between the prophet of a new political revelation and the last scion of the chief of the ancient regime, at least in the wild and overstrained imagination of a fanatic who could entertain the absurd and futile hope that he should be enabled to produce the regeneration of society, and to constitute a jubilee of universal relationship and brotherhood.

However, this must be received as a mere report, the most scrupulous enquiries made by his contemporaries, within whose reach were the best sources of information, having failed to substantiate anything definite on the subject.

Another rumour was likewise industriously circulated, identifying Robespierre as the agent of some of the foreign courts, and especially of the cabinet of St. James. This originated in a letter which was found among his papers—as mentioned in the Report of Courtois—wherein an anonymous republican congratulates Robespierre on the success which had attended his revolutionary proceedings, and suggests the propriety of his retiring, after he should have struck a few more blows, into some foreign country, where he might enjoy in quiet his accumulated riches—the reward due to his merits—and there hold up to ridicule the fools of his own country: no rumour, indeed, seems to be more widely spread, but at the same time more devoid of credit. How possible is it that this letter was an impudent forgery, thrust among the other papers in order to aggravate the culpability of the deceased—a base and infamous expedient, suited to the period at which it was called into practice? It is even more than probable that this and other letters of a similar character were, *in fact*, anonymously addressed to him by his enemies, in the hope that they might be intercepted, and become the means of exciting suspicion as to his character in the public mind: indeed, the very tenor of the letter we have quoted betrays the malicious object of its author, who is so utterly shameless as to term “the accumulated riches,” *a reward due to his merits*, etc.

Political crimes are generally committed with much prudence, expertness, and tact; and when dealt with by state agents, and their subordinates, it is invariably under the plausible pretence, and with the philanthropic view, of promoting the public weal, that such *coercive steps* are taken, whilst selfish and private motives more frequently give birth to them.

So much vulgarity and grossness of style pervades the letter referred to in the Report of Courtois, that even the obdurate feelings of a pickpocket would be outraged by it: to how much greater an extent will this observation be considered applicable towards a man whose

bitterest enemies could discover no reason to impeach his integrity, or to question his unparalleled disinterestedness? Not the slightest trace of the treasures with which it was imputed that Robespierre enriched himself was discovered after his death, nor was any further proof established of his having maintained a correspondence with foreigners. He who sells his conscience, or barter away his conviction, does so for a valuable consideration; but no one instance is discernible, in the whole character and conduct of Robespierre, wherein he betrayed any less worthy motive, or propensity, than to carry fully into practice his political principles; and the very enthusiasm with which he pursued his object superseded and subdued all other inclinations and passions. If any doubt or obscurity be still considered attached to the history of the Revolution, it undoubtedly is with respect to the influence exercised over Robespierre by *foreign* agents, whose *tool* he might possibly have been, but not their conscious accomplice.

The immense flow of blood which characterized the Reign of Terror, deluging the whole face of the land, and carrying with it dismay, disorder, and bitter lamentation among all classes, sects, and ages of the people, was undoubtedly calculated to excite the sympathy, and to revolt the feelings, of the most indulgent historian, who being unable or unwilling to attribute this dire affliction to any reasonable cause, felt a sort of gratification in imputing the monstrous phenomenon to a *purely brutal thirst for blood* in Robespierre. The members of the aristocracy, who were at all times disposed to act upon the opinion that the most deadly and vindictive calumnies were by no means ill bestowed, if levelled against those whom they considered their enemies—persons, likewise, of a religious turn of mind, who recognized in all those cruelties the free work of Satan himself, as well as journalists and historians, have all, in short, conspired to attach credence to that ill-founded and unjust hypothesis, which has at length become so prevalent as to bias the judgment, and prejudice the understanding, of even the most impartial and liberal inquirer.

The propensity to shed blood, according to the opinion of naturalists, is inherent in the lowest order of animal life, and is peculiarly distinguishable among insects; neither is man himself, in whom is concentrated the instinctive genius of all the other creatures of the animal world, exonerated by historians from partaking largely in this most brutal propensity. The aristocracy in France first set this odious example, by converting into a species of amusement the tortures to which they subjected the lower classes of society, who,

having caught that brutal infection, finally luxuriated in the like ferocious pleasure. About the time of the Revolution, many hot-headed, and, what is still more disgraceful, many able writers, indulged in disgustingly licentious publications to such an extent as could not fail to contaminate the minds of general readers, as well as to be highly prejudicial to the well-being of society, by divulging and giving free circulation to the secrets of the *Boudoir*—a description of reading which, as it well accorded with depraved appetites, found numerous admirers among the people. Indeed, no reasonable doubt can be entertained, from the scenes which occurred at Nantes, in La Vendee, at Lyons, and Toulon, that even vast numbers of murders were committed, with no other object than to gratify a bloodthirsty inclination.

But Robespierre's enormities were quite of another character. His private life is universally admitted to have been highly moral and unimpeachable,* the numerous victims who were sacrificed during the Reign of Terror being in a few instances only known to or seen by him. Neither should we permit the fact to escape our present notice, that it was he who urged, with the most zealous perseverance, in the Constitutional Assembly, the propriety of totally abolishing capital punishment.

The wretched fate of the unhappy king was neither the offspring of Robespierre's conception, nor did it even meet with his sanction; but, on the contrary, it was Robespierre who, after Louis' unsuccessful flight, recommended that the catastrophe should be deferred, and that this act of leniency should be taken advantage of, in rendering the struggle between the aristocracy and the people—which had then become irreconcilable—less sanguinary, and more in the nature of open declared warfare, than as resulting from deep-laid stratagem.

All the members of the National Assembly who had but reluctantly resigned their aristocratic privileges, and still clung with persevering tenacity to their noble order, crowded once more around the monarch, and placed him, *bon grè mal grè*, at their head—a position which was invariably chosen for him, like a captive king among the Romans leading the triumphal processions—and the struggle, now assuming its true and legitimate character, finally

* Garat, *ibid*, says, "Robespierre que l'Europe croit voir à la tête de la Nation Française, vit dans la boutique d'un menuisier dont il aspire à être le fils; et ses moeurs sont decents sans aucune affectation et sans aucune surveillance hypocrite sur lui même."

resolved itself into a contest of opinions. The fierce party strife existing between the aristocracy and the people being no longer, in the slightest degree, to be controlled, the members of the National Assembly endeavoured to moderate the virulence of the adverse factions by leading the monarch from the prison, where the public sympathy at least was extended to him, once more to the throne, which was shorn of all its former charms and splendour, save its giddy height, and where heart-burnings and dark suspicions constituted his only guard. The prophetic warning of Robespierre, conveyed in these words, "Cæsar was assassinated because his person was inviolable," was but too strictly realized when the king, being sorely pressed on by all parties, found there was but one alternative, either entirely to suppress and subdue the Revolution itself, or to become its certain and hapless victim. Having been thus placed in the midst of the contending parties, he became, as it were, a target to the one and a shield to the other: all parties, therefore, may be said to have dipped their hands in his blood.

The mystery and doubt in which Robespierre's designs are involved admit of no elucidation, according to those ordinary rules by which human ambition is generally supposed to be guided; and all inferences being more or less involved in contradictions, we must be satisfied with the explanation afforded by Bailleul, to which we have already referred, which stands alone in bearing the test of investigation. We are still, however, at a loss to account for the success with which, for a long time, he pursued his resolution to found a new social institution among the people, who were neither able nor willing to enter into projects as little consonant with the feelings of the nation at large, as they were ill suited to the times in which they were proposed. It is true that all his measures, however severe, failed to exterminate the actual existing society, which was to be superseded by the ideal fraternity conceived in his fertile imagination; but he nevertheless shook the former to its very foundation, in a manner unparalleled in the history of nations. The question, then, which remains to be decided is, how or by what co-operating circumstances did he acquire and wield that unrestrained popular influence which enabled him to indulge his chimeras, and to carry devastation, fire, and sword, into the remotest corners of the land? We must here repeat that fickle nature had not endowed the poor lawyer of Arras with those dazzling talents and personal graces which, fastening on the attention, frequently extract an acquiescence from auditors before time has been afforded them duly to consider, and to argue, the subject in dispute. He governed

by *terror*, receiving no support from the love and attachment of the French people ; and yet it is as perfectly certain that he possessed the *confidence* of the mass to a far greater extent than even the most philanthropic monarchs ever commanded.

The true basis, however, on which his popularity rested, was *his own conviction of the feasibility of his designs*. Already, during the earliest sittings of the National Assembly, Mirabeau, the political prophet of that period, after silently listening to the unenlightened effusions of Robespierre, which were received with sneers by the other members, exclaimed "*That man will prevail, for he believes what he says*" (il ira loin, il croit ce qu'il dit). He derived much popular esteem, likewise, from the respectful language in which he invariably couched all observations having reference to the people, terming them the grand focus from whence all virtues flowed ; from the felicitous concord at all times existing between his words and actions : and the moral conviction he himself entertained of the justice of that creed by which he regarded all descriptions of moral delinquents as the people's foes. So firmly was his popularity established by these circumstances, that it was withdrawn from him only with his life, and his fall was compassed rather by surprise than by the more powerful influence of his opponents. Oelsner, a German writer, who was an eye-witness of all the revolutionary scenes in the capital, thus speaks of Robespierre :—"The people were so convinced of his honesty, that they could have actually seen him pick pockets, and yet would have been but ill disposed to confide in the correctness of their own vision."

In like manner, Burke explains the popularity of the Jacobins, when he says* that the Jacobin Revolution is the offspring of men neither elevated in rank nor meriting esteem—of a wild and impetuous temper and disposition—full of levity, arrogance, and presumption—and as destitute of any governing moral principles as of wisdom. Whence, then, did they derive that popular power and authority which, overcoming all obstacles, alarmed even the most resolute men ? From a qualification infinitely surpassing all others in worth—**ENERGY OF PURPOSE** ! It is to an unconquerable mental impulse, an enterprising spirit, but above all to the exercise of this energy of purpose, that men are indebted for the positions they hold, considering the confused and unsettled state of affairs in France.

Fanaticism is not to be acquired simply by resolution ; in other

words, a man cannot make up his mind to become a fanatic. Genuine enthusiasm, which in its rapid, but ill-directed, flight, terrifies and confounds its opponents, is intrinsically a part of, as it is originally acquired from, virtue—from, in fact, a moral conviction of being in the right: an impression so influential in awakening the dormant susceptibilities of its votaries, that it may become contagious when carried to unreasonable, and even to outrageous excess. Selfish motives, and that artificial circumscribed enthusiasm which is nearly allied to, if it does not wholly arise from, mere personal caprice, carry with them the germs of their own extinction. An egotist, who seeks his own personal gratification alone, may attain his object of corrupting or destroying; but he cannot, whilst pursuing this merely selfish course, kindle the mental powers, or influence the understanding, so as to *convince* the crowd: nay, it may be doubted whether he would be capable of rousing this spirit of enthusiasm even within his own breast. He may deceive the judgment, but he cannot by such means create within them the moral *conviction* of wrong. This assertion is verified in the historical narrations of all great revolutions, wherein the powerful voice of the people was raised in asserting and claiming their just rights, as distinguished from the arrogated prerogatives of the few: and this is more particularly remarkable in the events of the French Revolution.

Those feelings which lead us to aspire to freedom and equality are inherent in our nature, the latter being somewhat sanctioned by the Almighty himself, in whose eyes all are equal; and were it not for this influential moral conviction, which, when disturbed, electrifies whole nations, instinctively stimulating them to revolutionary actions, the great mass of the population would ever remain in a state of hopeless degradation, mere beasts of burden, governed by the absolute power, and lashed by the iron rod, of their despotic rulers. Revolutions are frequently grounded in justice, and are often forced on the people by circumstances of an urgent and imperative nature, having an injurious tendency only when the multitude, actuated by a fearful spirit of revenge and retaliatory fury, are no longer guided by reason, but forgetting the noble cause, and losing sight of the object desired, fasten, like a ferocious beast, on both friend and foe. It is true that reason at last checks the bloodshed, restoring both order and safety; but we must nevertheless lament the fatal march of events by which so many innocent victims are sacrificed to the popular frenzy; and moreover we cannot be insensible to the melancholy lesson thereby afforded—that the

least introduction of true principles is generally attended by heavy sacrifices, which are too frequently to be apprehended, either from the mismanagement or incompetency of those whom accident or circumstances have placed at the head of such momentous events.

How seldom do we find the requisite proportions of discretion and courage in men holding elevated rank and commanding positions in society ! and even though nature should originally have been lavish in her disposition of these invaluable endowments, yet may their beneficial effects be lessened or neutralized, by the education afterwards acquired at school, or by the force of example received in subsequent life. Ardent, youthful minds, but too frequently admit fanciful impressions at school, having no foundation in reason ; whilst worldly experience, obtained in maturer years, deadens the noble impulses of the heart, giving place to avaricious and selfish motives. Reason, it is true, suggests the course to be pursued amid the complicated affairs of practical life ; but man is too often deficient of resolution and energy to adopt her friendly admonitions : hence we see persons of distinguished rank and talents degrading themselves from that high position in society, which they are eminently qualified to fill, and damning their fair fame by entering into intrigues with the meanest and most disreputable characters, for the purpose of acquiring influence and extending the sphere of their operations. Imagination, when uncontrolled by the intellectual powers of the mind, gradually transforms man into an enthusiast, who, soaring on high, and luxuriating in the unbounded space of an ideal world, regardless of the habits and feelings of the people by whom he is surrounded, and setting at nought the spirit and temper of the age, expects his contemporaries to join in his aerial flight, though they neither possess the capacity to understand, nor the desire to indulge, such credulous fancies.

These elements, *reason* and *imagination*—the enlightening and animating principles, which conjunctively contribute to form the character usually designated “ a great man ”—were not discernible in an eminent degree among the leaders of the French Revolution : hence the disappointments and difficulties which encumbered the path of the wary, over-calculating Mirabeau, and those dire calamities which darkened the career of the fanatic Robespierre, whom we may justly term a *moral monster* !

It will not be uninteresting that we should trace to its origin the extraordinary notion, regarding the regeneration of society, which, in taking such complete hold of Robespierre’s imagination, prompted him to commit acts of atrocity little according with his moral cha-

racter and habits in private life ; and that we should extend our researches, likewise, into the psychological history of the rise and progress of those chimerical designs, as holding up a mirror to reformers of the present day, from which their own likenesses may be reflected (are form mania, more or less, pervading all countries at this moment), and likewise manifesting with what facility reforms may become prejudicial to the well-being of a nation, if due attention be not paid to their probable tendency and effects, whether they are suited to the wants and pursuits, and will be satisfactory to the feelings, of the people, for whose benefit they are designed.

Oelsner, to whom we have above alluded, relates an anecdote which throws considerable light on the workings of Robespierre's mind, in the early part of his political career. Robespierre, who was then a member of the Constitutional Assembly, being present at a party where, among other topics, the different forms of government which existed in the world became the subject of conversation, appeared to take little interest in the discussion, amusing himself by playing with a large dog belonging to one of the party : a sneer or contemptuous curl of the lip, however, was occasionally visible, showing that he was not wholly indifferent or a stranger to what was passing. At length, on being invited by one of the party to state his opinion, and acquaint them with what description of laws he would govern the French, if he were called upon to rule over them, he laconically replied, "*The Laws of Lycurgus.*" The astonishment of the company was indeed great when they heard a representative of the people avowing a political creed, not only in itself absurd, but altogether at variance with the known desires, feelings, and tastes of the nation ; and having enumerated their objections to Robespierre's positions, they pressed him to state the arguments on which his opinion was founded : but he was again engaged at play with the dog, and the same repulsive sneer, so peculiar to him, being repeated, was the only reply they could obtain.

In comparing this decisive and brief expression of his opinion with his speeches (especially those delivered when he held highly elevated positions and commanded corresponding influence), which abound with allusions to the civic virtues and heroic patriotism of the ancients, so well delineated in Plutarch, no doubt can be entertained that from early life he was impressed with the feasibility of his absurd and fatal desire to regenerate society, by having recourse not to progressive measures, but to a retrograde march of thousands of years, when civilization was scarcely in its dawn.

Athens, in the zenith of its glory, holding the proudest political

position among the nations, and celebrated for its exemplary civic virtues, did not contain more than ten thousand free citizens, the remainder of the population consisting of slaves, debased beyond description. Rome, that pattern of republics, was crowded with workhouses, wherein inhuman cruelties were perpetrated on the inmates, which can be fitly compared only to the torments endured in the bagnios at Constantinople. In the cold, heartless, and uncharitable *Civism*, was comprehended all the virtues of which the ancients could boast. It guaranteed the enjoyment of unlimited liberty, and the unrestrained exercise of sovereign power, to a few thousands, whilst it imposed extreme degradation, and hopeless misery, on the remaining millions, rendering the condition of our modern slaves comparatively enviable: such, indeed, was the rigour with which that civic virtue was carried into practice, that the more it was divested of humanity, the nearer the system was considered to approach perfection. The republics of the ancients afford, therefore, an example to be shunned, except by those politicians who despair of the progress of moral and intellectual refinement in society; or by fanatics who, in the extremity of their admiration and zeal, become insensible to the grievous calamities which must ensue, if a system so pregnant with mischief were applied to modern times.—Rousseau, though he well knew that the civism of the ancients was directly at variance with those sublime principles of Christianity out of which modern civilization has sprung, was nevertheless fully impressed with the conviction that the frailties of human nature would always incapacitate man from the attainment of those higher virtues, and was therefore satisfied to recommend to society the inferior institutions of early civilization. Robespierre, too, was far from being ignorant that the boasted liberty of the ancients was a privilege in which but a very small proportion of the community participated, falling far short of the freedom claimed by modern nations; yet was he ever impressed with the belief that this ancient civism was in itself most perfect. Even the more sober Montesquieu considered this ancient virtue as the sole moral principle best calculated to promote the welfare of the Republic: while the system acted, as if by a magic spell, on the chaotic brain of our fanatic, and conjured up in his imagination all the miraculous and heroic deeds of antiquity, whether historical or fabulous; and the word civism (patriotism) was considered so comprehensive by him, and presented to his mind so many virtues in various forms, and so well suited to all the exigencies of practical life, as to constitute perfection itself.

We cannot be surprised to find that the glimmering shadows of antiquity afforded so much food for contemplation to Robespierre, whilst thousands of the well-educated and sober-minded classes of society, even of the present day, cling with pertinacity to ancient institutions, which they would fain introduce in these modern times, had they Robespierre's power to do so. The laws, customs, and exploits of antiquity, being indelibly impressed upon our memory whilst at school, when the mind and heart are alike susceptible of the most noble and sublime impressions, we are led to suppose that the world in which we live, and all those human beings by whom we are surrounded, are endowed with virtues similar to those ascribed to the ancients ; but we have no sooner arrived at a mature age, and entered on the busy scenes of life, than, alas ! we find all our joyful anticipations to be deceptive and groundless : we nevertheless cherish the recollection of those happy days ; and as we have reason to be proud of them, so do we return to those feelings with satisfaction, for they were both genuine and human. The hopes may be belied by others, but the feelings are our own, and may be carefully fostered within our bosoms, despite the melancholy trials, numerous disappointments, and fatal vicissitudes of life.

All the states of Europe have more or less framed their moral and political institutions after the model of the Roman empire, in its decline ; and the multitudinous forms of despotism—from the pompous titles attached to majesty, as introduced by the senator Sextus Pacuvius, down to the assumption of divine authority, as claimed by Caligula—all the resources from which the state's revenues were derived—from the taxes already introduced by Caligula, extending to the civil laws of the Byzantines—together with all the ceremonies constituting court etiquette, and the proceedings of courts of law and justice, have been introduced into, and amalgamated with, the public affairs of the various modern states of Europe, to which they have proved as salutary as they were fatal to Rome. The various moral, legal, and political institutions which prevailed in Rome, when she was rapidly progressing towards her ruin, are studied by statesmen and men of business ; while the glorious and sublime events of her early days are cast into the shade, and treated as fit subjects of inquiry by schoolboys ! At school we read much of Lycurgus and Solon ; in practical life we take Justinian for our guide. At school we are impressed with the virtues of Epaminondas, Aristides, and Socrates ; whilst in after life we find it not less desirable to possess the wealth of a Seneca and the good fortune of a Sejanus.

Such being the impressions and theories which are instilled into our minds whilst pursuing our youthful studies—in direct opposition to those principles by which our conduct must of necessity be governed during our intercourse with society in after life—circumstances in their nature and tendency so contradictory would unavoidably give rise to dissensions and heart-burnings among the community, and shake the institutions of a state to their very foundation, but for habit and use, by which men's tastes become as readily reconciled to those things which *are*, as they are apt to lose sight of those things which *ought* to prevail. The changes of day and night, the revolutions of the planets, the returning seasons, and death itself—the most mysterious of all riddles—pass before us without leaving any impression on our minds, because our senses became accustomed to them long before we reflected on their nature. How can it, then, be expected that the great disproportions in society, as applied to persons and property, should produce in us a deeper impression? The defenceless state of the people, the corrupt proceedings of the government, of the courts of justice and their subordinates, the disregard shown to merit, and the promotion of individuals of mediocre talents and questionable character to rank and places of emolument, are as familiar to us as light and darkness: we have them every instant before our eyes; yet is our perception of the existence of such abuses weakened by their unceasing recurrence, as the never-failing manifestation of the workings, and constant contemplation of the wonders, of the creation, destroys the mental faculty of curiosity and inquiry.

But the laws of nature are eternal and immutable, whilst the statutes and institutions framed and established by men are as perishable as their authors; and no sooner has the spirit of life (or of the age) departed from those institutions, than all the efforts of succeeding generations to re-animate them, must be ineffectual. Hence the people lie groaning under the weight of an immoveable, inanimate mass of despotic decrees and regulations, which admit of as little amendment or reform as a dead body can be revived by physical remedies; and the struggle which ensues between the conservatives and the abolitionists must necessarily assume that bloodthirsty, barbarous, and uncompromising aspect, which characterized the events of the French Revolution, where the views and interests of the contending parties were so strikingly at variance.

In all countries whose institutions are, in some measure, reared on a free and enlightened basis—where the laws partake more or less of the imperishable spirit of liberty—those reforms in the esta-

blished order of things which are dictated by reason, and which time and circumstances render expedient, may enforce a change in, but will never lead to an entire overthrow of, the government ; all subjects in dispute between the people and those placed in authority admitting of easy and amicable adjustment. But in such a country as France, over which the iron hand of the fiercest despotism had been for ages extended, and where not even the rays of national liberty were permitted to illumine the prevailing darkness of barbarism, the people, being in ignorance of the true character of social liberty, are prone to confound licentiousness with freedom ; and the war which ensues between the combatants—the one worshipping a mummy, and the other indulging the most extravagantly fanciful and unattainable ideal chimeras—must be attended by the most lamentable digressions from the paths of rectitude and truth, inevitably producing those moral monsters of whom Robespierre will ever remain a lamentable specimen in the pages of history.

The feelings of the people of the Netherlands were strongly imbued with a spirit of liberty until its suppression under the absolute rule of Spain ; and when religious enthusiasm gave rise to a political war, the belligerents, ever keeping in view the object desired, disputed their ground by deliberate steps and with suitable measures, in no respect digressing into those extravagancies, or debasing themselves by committing those crimes, which disgraced the French Revolution, though the contest was protracted for thirty years. Similar observations may, with much propriety, be applied to the family war carried on between the houses of York and Lancaster, regarding the legitimate title to the throne of England, as established by the constitution, which, though damaged in its superstructure during the despotic reign of the Tudors, remained nevertheless unshaken in its foundation.

The Spaniards, likewise, have been at all times warmly attached to national liberty, guaranteed to them, in some measure, by the existence of the *Cortes*, who, notwithstanding their power was curtailed by the despôts immediately succeeding Charles V. nevertheless contrived to preserve, at least, the remnants of freedom, which have gradually taken root in the affections of the whole people ; and though the Spanish nation, at this moment, is divided against itself regarding the right of succession to the throne, and perseveres in a protracted civil war, which entails the severest calamities on the population, it has not hitherto assumed the fierce and inhuman character so peculiar to the French Revolution. The American Revolution, so celebrated for the mildness, purity, and patriotic zeal which marked its

progress, and will ever entitle it to honourable distinction in the annals of nations, finally, affords us the most conclusive evidence that when a people accustomed to liberty—by whom an ardent love of freedom is considered the brightest gem that can adorn the brow—fight for their rights, no opportunities are afforded to shallow-minded fanatics to indulge their wild and speculative fancies, neither will they be permitted to divert the people from their object, and involve both friend and foe in one common ruin.

AN ACCOUNT OF THE PROCEEDINGS OF THE FRENCH
GEOLOGICAL SOCIETY, DURING THEIR MEETING
AT PORRENTRUY, SEPTEMBER, 1838.

IT will no doubt be a gratifying thing to all those who are either ruminating on, or anticipating, some great meeting of British savans, to hear that the method of managing such affairs seems pretty much the same on all occasions, and that the heinous offences of eating and drinking are not committed by Englishmen only, but also by French, Swiss, and German wise people, all of whom seem equally to enjoy the hospitable board and the cheerful bottle.

Trusting to be able to make out this point, though, I must own, rather in despair at the amount of geology that will be forthcoming, I proceed to give a narrative of a most amusing week that I spent this last autumn in the north-west of Switzerland, while journeying to the town of Porrentruy, during my short sojourn there, and in company with the members of the society, while making an expedition southwards—an expedition which resembled more the triumphal progress of some public characters, than the quiet and simple travel with which geologists are accustomed, hammer in hand, to visit and patiently examine an unknown or interesting district.

Before proceeding with my story in order, it may be as well to say a few words, both on the French Geological Society itself, and also on the place of meeting selected, the latter more especially, because it is in an out-of-the-way corner of Switzerland, very seldom visited by travellers, and many persons would not know whereabouts on the map to look for it. If, however, the reader will take

a map of Switzerland or France, and search in the north-western part of the Canton of Berne for a small piece of that canton which juts into France, and is surrounded by it on three sides, he may—provided his map is a good one—see there marked, in tolerably small letters, the name Porrentruy, or Pruntrut, for the latter is the German denomination. In other words, it may be mentioned as about seventy miles east of Besançon, and perhaps rather more than one hundred north of Lausanne. It is situated in one of the valleys of the Jura, enclosed by hills of moderate elevation, and is said (I know not with how great veracity) to exist rather by the smuggling propensities of its inhabitants, than by any trade or manufacture. At all events, there is very little of either of the latter to be observed. With this short notice, I must proceed to do justice to the French Geological Society.

This society, unlike most of those on the continent, is founded on an English model, that is to say, is very expensive to its members, and with the greatest liberality opens wide its arms to embrace all, whether natives or foreigners, who have no objection to paying sixty francs entrance fee, and thirty francs per annum besides. It is still in its youth, and can hardly be considered as very distinguished, although it certainly numbers among its members some of the most eminent continental and even English geologists, and has already published some useful papers. The society, besides its regular meetings, calls together its members annually at some town in France or its neighbourhood, choosing for a place of assembly some district interesting for its geology. It will now, perhaps, be understood how a French society happened to hold its meeting in Switzerland, and why a town otherwise quite unimportant should have been fixed on, because of its convenient distance from some of the most instructive secondary geology of France or any adjacent country.

In order to get to Porrentruy, I had (as I was making, at the time, Lausanne my head quarters) two roads open to me, the one by Berne, Soleure, and Délémont, by the diligence; the other by the valleys of the Jura, only practicable on foot. Being anxious to see the scenery within the ranges of those very interesting mountains, and being, moreover, a tolerable walker, I chose the latter, and, after a most interesting and instructive journey of nearly four days, arrived at my place of destination after most of the others, and while the business of the meeting was proceeding.

The valley in which Porrentruy is situated is not very extensive in its dimensions, either of length or breadth. Standing on the low

ridge which must be crossed in coming from the south, the eye reaches from one extremity to the other, and the little town of Porrentruy, and the village of Alle, about two miles and a half distant, look like two sentries keeping guard over the fertile hollow between them. A narrow and not very deep, but rather noisy, stream, is seen joining, by a kind of thread, the village to the town; and the high road runs along its banks beneath a pretty escarpment of some limestone rocks, which have probably been brought into their present state by the long-continued action of water. Descending from the ridge into the valley towards Porrentruy, the town is seen more plainly. It appears pretty and picturesque from a distance, as it is furnished with several of those little round Swiss towers, with conical caps on their tops, which are so well known and so effective in the mountain scenery of the country. Unfortunately, as is too often the case, a further acquaintance does not improve, or even confirm, the first impressions; and the perfection of knowledge to which I afterwards attained on the subject only left the following unbiassed account in my note-book:—"It is a walled, ancient place, with streets of dirty-looking badly-built houses, with churches and market-places to match; and is surrounded by some very useless defences, which could hardly detain any army half a day to destroy."

In a place like this, it may well be imagined that the arrival of forty or fifty persons at once would produce no slight effect. The inns were crowded; and it was only by certain judicious enquiries after eminent scientific persons, and an intimation that I desired to be *taken in* in a scientific sense only, that I managed to obtain half a bed-room and a whole bed. I must acknowledge that my appearance could not have been very prepossessing, as my idea of propriety in dress necessary to walking geologists is extremely low; and I was at that time practising my theory to the full extent, and looking as little like a gentleman as an utter neglect of the elegancies of the tailor, hatter, and shoemaker, could make me. As soon, however, as I obtained a room and lodging, I made myself as decent as the state of my wardrobe permitted, and went from hotel to inn, and from inn to public-house, enquiring after the people I expected, and whom I either already knew or had introductions to. I found very soon that none of the eminent French geologists had come, and that of those who were present all but one were engaged at a grand dinner then going on, and given to the society by the Canton of Berne. The one exception, however, was sufficient for me; and I found in M. Morelli, of Milan, an agreeable companion, and one who could give me just the information that I required. As I saw

no one else that night, and am not clever at describing the intricacies of a supper at the Table d'Hôte, with which I closed the day, I will at once pass on to the next morning, at a little before six o'clock, and start fairly on a geological expedition planned for the day, partly to enlighten the members as to the formations in the neighbourhood, and partly, perhaps, to prepare them for the solemnities of the approaching evening, when there was not only a dinner to be eaten, but also a ball to attend.

According to appointment, there was a considerable muster at "The College" soon after half-past five, and that in spite of a driving rain, which threatened complete discomfiture to every thing short of a Macintosh. The members present consisted of a motley group from almost all nations under heaven. Besides the French, Swiss, and Germans, who seemed to be about equal in number, there was a Russian, a Belgian, an American, and (when I appeared) an Englishman; and I must say that nothing could have exceeded the perfect cordiality and friendly feeling which seemed to animate every one, without exception, and united the whole party into one joyous brotherhood, determined to find amusement and, indeed, instruction, in every object and every incident that presented itself.

The only men of any European reputation present were, Dr. Louis Agassiz, of Neufchâtel, decidedly the first; Professor Studer, of Berne, a rising and very talented geologist; Professor Thurman, of Porrentruy, who has written a valuable memoir on that part of the Jura range in the Canton of Berne; M. d'Omalins d'Halloy, the author of a good work on geology, and who has studied his own country (Belgium) extremely well; and M. Ceninghausen, who some years ago made an expedition to England, and published works on the geology of our south-western coast. Besides these, and M. Braun, of Carlsruhe, a most excellent mineralogist, I cannot recall any names of note.

Let us now start upon our expedition, which was, we were told, to last till two or three o'clock, and show to us the valley of dislocation immediately south of Porrentruy, disclosing the geological series from the Portland oolite, on which the town stands, across the Kimmeridge clay, and through the coralline oolite and Oxford clay, to the great oolite.

Leaving the town and proceeding southwards, we began to rise gradually, and soon attained a moderate elevation, whence the chain of the Vosges in France, and the mountains of the Black Forest in Germany, formed a beautiful finish to the extensive prospect which opened upon us. I must remark here that I was astonished at the

really elegant outline which the range of the Vosges presented, and learnt for the first time that the valleys within the chain, and the general character of the country and its inhabitants, are as interesting, and even picturesque, as the scenery which attracts so many travellers to many parts of Switzerland and Germany. But this by the way, and as a hint to future travellers in the east of France.

Having stopped a little on this rising ground to collect our forces, which had been rather scattered, in consequence of a little foraging which had gone on in a village through which we had passed, we continued to ascend till we reached the principal summit of the Portland oolite, beyond which there is a very slight descent, and a narrow and inconsiderable valley, enclosed on the other side by the lower beds of the oolite, here lifted up, and forming the highest part of the ridge; while in the valley itself there occurs a bed of clay, probably identifiable with our Kimmeridge clay. To explain this appearance more clearly—and it is one of the effects of disturbance most frequent in this part of the Jura—let the reader imagine a succession of strata, of which the three uppermost are stone, clay, and stone, lifted up into a ridge by a force from below. It is not difficult to conceive that in binding thus a brittle stone, the upper bed, not defended by pressure from above, will break, and be exposed to very rapid degradation by atmospheric causes, when the effort which raised the mountain has ceased to act. Thus, after some time the broken capping of stone will be destroyed; the clay, which came next, being soft, is early washed away; and nothing remains but the part originally lowest, now forming a central ridge higher than the other beds. But, again, the capping of upper oolite we spoke of as broken, would only be much injured within a moderate distance of the line of extreme pressure, and therefore along the sides of the hill it would be more solid, and less liable to injury. Just so we find it: we have an irregular ridge, not so high as the central; then a valley, caused simply by the more rapid washing away of the clay than the stone beds; and lastly, in the centre, the stratum lowest in formation highest in accidental locality. This description of one very numerous class of disturbances in all hilly countries, especially the west of Switzerland and the east of France, may be useful to those not much accustomed to geological generalizations; and it need only be added that we have here described a simple case of “anticlinal axis,” a word in common use, but of which a direct explanation is hardly to be given without mathematics, although this indirect way, by example, may perhaps be clear.

It will be apparent, from all that has been said, that the inclina-

tion of the beds is exactly opposite on the two sides of the hill or ridge; for it is just as if one took sheets of paper, and bent them so that the middle should be the highest part, when the sides would shelve away like the roof of a house, each in a different direction. But I am wandering dreadfully from my subject, although, as it was to see the little bit of geology I have been describing that the first part of the expedition was planned, I thought it right to make the most of my science when it could be introduced.

After having viewed the collocation of the beds, and the nature of the disturbance at Monturban—or Mont Terrible, as this remarkably unterrific spot is, by a rather absurd perversion of names, universally called—we returned a little, and went to visit a very curious gorge in the oolite, extremely narrow, and walled in on each side by perpendicular rocks, which occasionally projected more or less into the gorge, and almost closed the passage through it. Then, going on, we passed a tolerably thick bed of the Kimmeridge clay, and saw another singular appearance in the oolitic beds, where a sudden escarpment seemed to terminate a nearly flat table land of the Portland rock; so that we came absolutely upon the overhanging edge of a precipice, and looked down perpendicularly more than a hundred feet, without having been aware, till the very moment of reaching the edge, that there was any change in the level of the ground.

Now this was undoubtedly a very interesting place: interesting in its geology, interesting in its picturesque beauty, interesting in the very extraordinary and really unusual abruptness of the escarpment. But (alas for human nature!) some of our party, with noses which, for acuteness of scent, might have made an Indian envious, discovered at no very great distance a small house, where a most substantial luncheon was prepared. Instantly was the geology, the picturesque, and the interesting, neglected; and before many minutes were past our whole party were seated before some extempore tables, on benches of very questionable character, discussing with the most hearty good will a capital meal, which was not unnecessary, considering the labours we had undergone and those in prospect. As soon as appetite was satisfied, some Germans of our party began singing chorusses—a convivial practice, which they enjoy exceedingly. Before long, single songs were called for, and out of our heterogeneous assembly we mustered songs in at least three kinds of patois: one person danced a Tyrolese dance, accompanying himself with his own voice; the Russian danced in the manner of his country: and the scene taking place in the parlour of a little

road-side public-house, the hammers, knapsacks, bags of all kinds, and other accoutrements, lying about; the costume and appearance of the people; every thing, in short, combined to make it one of the most extraordinary and amusing adventures I ever had. It was truly delightful, too, to see how completely every body threw himself into the fun of the thing, and seemed to enjoy it perfectly for its very absurdity.

After our singing was over, we marched forth again, and visited a bed of lias brought to the surface by a disturbance similar to that of Monturban, of which it almost forms a part; and when we had got satisfactory ideas and fossils on this point, we proceeded to view a bed of gypsum at no great distance, and then returned to Porrentruy by some carriages which had been ordered to attend us, and which we found at a neighbouring village. I should mention, by the way, that the weather had cleared, and that only the beginning and ending of our walk were rainy.

As we arrived at our hotel by about half-past three, and were not to dine till five, we had time to make our toilets, and prepare for a grand dinner given by the town in our honour, and followed by a ball. The dinner was, I am sorry to say, not the very best I had ever eaten; and I have the authority of French and German, Russian and Italian, Swiss and American, for calling it, as it really was, execrable. I am almost sorry to put it on record, the thing was done with such hearty good will; but the fact is undeniable. I should not forget, however, the giant of the table—a huge trout, nearly three feet long, brought in on a board because no dish could hold it, and as unfit to eat as extraordinary to look at. After dinner we were regaled with a geological dessert, consisting of *sucrifications* of terebratula and other shells; of a model in sugar of Mont Terrible, or some equally extraordinary Jura mountain; and last, not least, of a large number of small ammonites and terebratulæ, put up in paper, with crackers; and showing a fine example of the connexion of the physical sciences in thus enlarging the mind of the maker of bon-bons, while the philosopher sees with astonishment that a fossil is found where he had been accustomed to look for barley-sugar only. After dinner and two or three toasts, of course, most part of the company—the dinner having lasted three hours—were not sorry to join the ladies above, where dancing had already commenced. The ladies were—as ladies always must be—charming, and as there was a pretty sprinkling of Germans and one Pole there was no lack of variety; but, however I may be accused of unpoliteness, I must neglect them, that a line or two may be

devoted to the dresses of the gentlemen. Among our number there were a very few who had come provided for such emergencies ; and one especially, a handsome young exquisite from Paris, was attired in the very pink of fashion, with hair covering about four-fifths of his face, and gold and jewels about as large a proportion of his waistcoat. Contrasted with these was the dress of the rest of us, which may be thus described :—Coat any thing but dress, with or without holes, as might happen : mine was so time-honoured ; waistcoat nothing extraordinary ; trowsers all colours but black ; and, lastly, the feet covered, some with boots, some with high walking shoes and worsted stockings. This being our condition with regard to appearance, the dances of all kinds, waltzes, gallopades, and contre-danses, were kept up with great spirit till late. No supper was provided, but there were tea and coffee for those who chose to pay. A very short time was allowed for rest after these exertions ; and at half-past three the next morning we were again disturbed, that we might be ready to depart at four on a much longer expedition, and one which seemed to be the chief object of the meeting. Accordingly, before it was light there was to be seen, in the “salle, or manger,” of the principal hotel, the great assembly of savans, most deeply engaged in the discussion of coffee ; and outside the house might be found an equally extraordinary train of carriages, each with one or more animals attached : but to what species either carriage or animal was to be referred would certainly much puzzle an English naturalist to determine. Before very long, however, and after some clamouring to obtain, I really believe, the last vehicle of any kind in the place, we were all packed some how or other, and proceeded on our way. The carriages, as I have said, were extraordinary : some resembled flies, others looked more like carts ; and there was one of a kind which every one who has been in Switzerland must remember, with the seat sideways, and so ingeniously contrived that, under favourable circumstances, the whole beauty of a district may be passed by without giving the inhabitant the trouble even of admiring it. When we were all deposited, on we went at a most moderate rate, till after an hour or two we stopped, and got out to walk up a hill where the coralline oolite was exceedingly well exposed on the surface of some very highly inclined beds. There was here, also, to be noticed one of those curious proofs of the slow deposition of beds of limestone, which, however common, seem to me always interesting. One of the most plentiful fossils in this bed is a species of spatangus, of which numerous specimens, some extremely large, might be observed along the

exposed surface of the bed, but always in the same position as they had lived and died, and presenting only either the lower or the impression of the upper portion to observation. In no instance, out of very many that I saw, was any portion of the convex part of the shell visible. It is clear to the most superficial observer that the bed has been formed gradually round the shell, while the latter was resting quietly at the bottom of the ocean. When we had passed this spot, a turn of the road presented a most interesting prospect. Just before us, looking N.E. a conical hill rose finely and boldly from a quantity of other hills, which formed round it a most beautiful amphitheatre; and while all parts of this amphitheatre were richly wooded with forest trees there was seen, in contrast to them, a perpendicular escarpment caused by some disturbance, and exposing a synclinal axis in the conical hill, leaving bare a succession of terraces of coralline and Portland oolite, which met at an obtuse angle in the natural section of the beds.

Between this point and the town of Délémont the road is pretty, but not remarkable; but beyond that town we went for a short distance down the valley of the Byrse, which all who have travelled between Berne and Bâle must remember as amongst the most beautiful of all the Swiss valleys. The river, indeed, passes through deep cuts in the mountains, which border it, not only beyond Délémont, but also more to the south, between Montier and Courrendlin. Of this part I shall have to speak more presently; but, after passing the latter town, it crosses a wide tertiary valley for some miles to Délémont, and then almost immediately becomes shut in, and romantic rocks rise suddenly on each side to a considerable height. On these stood formerly strong castles; that on the west built by the Romans to overawe another on the east, which the early inhabitants of the country had erected for their defence, but of which all traces are now lost. One tower of the Roman work still remains, and a chapel stands before it, also extremely ancient, and perched on the very pinnacle of the rock; so that, when seen from below, one can hardly fancy that there is sufficient room even for the foundations of the building. This chapel, so romantically placed, is as curious for its interior as for its situation and appearance. There are in it two or three extremely ancient paintings, in a style resembling that of the early Flemish school; and one of these is said to be as much as eight centuries old. These are in the chancel, and the other walls of the church are all but covered with more than a hundred of the most extraordinary and even ludicrous pictures, left there "ex voto"—that is, in consequence of vows made by sick people, and for friends

in distress. It is utterly impossible to conceive anything more truly absurd: the perspective is worthy of a Chinese artist, but the faces and dresses are essentially European; and the funny looking children in squabby Dutch petticoats, contrasted with papas in bright blue coats, with gilt buttons and very short square coat-tails, and mammas in all the magnificence of wide frills and gay colours, is inexpressibly droll; what, however, all these had to do with religion it is difficult to say, at least to us sober protestants. The view from a cross just outside the chapel is very extensive and interesting, as it commands, not only the whole length of the gorge through which the river runs, but also the longitudinal valley which it is just leaving. There are not wanting in the distance, ancient ruined castles and village spires, to add the interest which man could contribute. I should not forget to mention that we were received by a deputation from Délémont, and requested to partake of a very handsome déjeuner a la fourchette, to which, I believe, we all did ample justice. After leaving the chapel we descended to a place where the pisolitic iron of the oolite formation is so plentiful that it is worked in considerable quantities, and then proceeded on our journey, crossing the tertiary valley already alluded to, and soon entering the gorge extending from Montier to Courrendlin. I am not aware of anything in Switzerland so truly extraordinary as this; and although I have seen much that is grand, bold, and picturesque, especially in the Oberland Alps, yet, looking with the eye of a geologist as well as a traveller, I must still say that this is the most extraordinary. To describe it I feel to be a vain attempt, for a great part of the wonder consists in the incessant shifting and changing of the scenery, and the extreme difference which every step we take seems to produce. Both the entrance to and exit from the gorge are quite sudden. In coming to it from Delémont we quit the open country, and in one moment find ourselves among bare, rugged rocks, rising perpendicularly on either side, presenting the most grotesque appearances, and giving natural sections of beds so utterly in disorder, and apparently inclined so variably, and without any plan, that the mind is lost and bewildered in attempting to follow the disarrangement, and trace anything like order in such confusion. Anticlinal and synclinal axes here follow so rapidly that all idea of counting their number is out of the question. At length, however, they cease, and there is the mark of a most violent disruption; the beds are first perpendicular, and then, within a hundred yards, they are seen to bend rapidly, until, at the top of the high exposed cliff, they are perfectly horizontal. So sudden a bend of rocks, which are now hard and

very brittle stone, I have never seen. After this the valley widens for a short distance, and is then almost closed in by two walls of rock, projecting to meet each other on the opposite side of the river. These walls are, perhaps, eighteen or twenty feet thick, and three or four hundred high, and they project not less than twenty yards from the general line of the rock on each side. Not far off there is a considerable spring of petrifying water, whose source is hidden among the luxurious vegetation and the water drops from the leaves and the extremities of the branches in a constant stream, encrusting with stone every substance upon which it falls. So large a quantity of calcareous matter is thus deposited, that the petrifications are actually dug out and carried to a distance, to be used as a building stone after time has hardened the composition. Soon after leaving these weeping trees, and on coming out of the gorge towards Montier, the tertiary sandstone called molasse is seen on the roadside, and continues southward. Our course, however, lay rather to the east, and we reached the Weissenstein the same evening, just in time to be witness of a most magnificent storm, but too late to enjoy the very extensive prospect which, in fine weather, makes this place so much resorted to by all travellers in Switzerland.

The next morning we left our elevated quarters on this mountain rather early, though without seeing more than some very pretty clouds far below us. Going first to an adjacent mountain, rather higher, we almost directly descended upon a remarkably interesting secondary valley, in which might be observed the whole series of the Jura oolites, down to the muschelkalk. I may remark here, especially to those who have not visited Switzerland with geological eyes, that no where can the effects of the various causes in operation be so well observed—no where are they exposed in so unaltered a way to observation—as in the valleys of the Jura, the eastern ones more particularly. All seems as fresh as if the disturbances had taken place yesterday, and one can see the jagged and naked rock at the head of a valley, melting quietly down into a regular hill-side, and terminating in merely undulating ground at the opening of the valley, with all the simplicity and clearness of a work of yesterday. It need not be pointed out how much the interest of geology is increased in such a district, and how many difficulties, or things which seem to be difficulties, are here cleared up before the light of nature and truth.

Working our way now towards Solothurn, or Soleure, we come into the valley of the Aar, and the geology met with is entirely secondary. The city of Soleure stands upon the Aar; and although

pretty and curious, and containing much to interest and amuse, we have not time to dwell long upon its beauties and wonders. I will mention only the museum, in which there is collected a remarkably fine series of fossils, of the Tortoise and Turtle kind, obtained from various parts of the Jura oolite. These consist, not only of shells, but also of bones and teeth, and are in great abundance, and extraordinarily perfect. Besides these, there are many first bones from the same formation, and a few teeth labelled Anoplotherium and Palæotherium, but which, in all probability, must be referred to some saurian, and not to animals which, as far as we know, belong exclusively to tertiary beds.

When we had seen all the wonders of the town—and I should not omit to say that the prefect and other authorities waited upon and showed us every thing—we partook of a magnificent cold collation, to which nearly a hundred people sat down, and then proceeded on our way, and towards ten o'clock arrived in the neighbourhood of Bienne, which was our next point of attraction. At about a mile from the town we found a deputation waiting our arrival, and having descended from our carriages, we listened, with our heads uncovered and our faces composed into the most decent gravity, while a short, puffy, important little man, with a proportionate voice, was haranguing us on the honour done to Bienne by our visit, and the delight which its inhabitants felt, in common with all the Swiss, at the opportunity of showing their feelings of veneration for the French savans, especially those who studied that science—of all others the most interesting—to which the society present had devoted itself. Having had a happy delivery of his speech, and thereby lightened his mind greatly, the little man listened with vast gravity, while our pro-vice-president made a fine flaming oration in the same style; and then, after much bowing, we put on our hats, got into our carriages, and made the best of our way onward: but our honours were not yet full blown. Before we had got much more than half a mile, or were at-all within sight of the town, we heard salutes firing: our modesty at first refused to believe that it was intended so to exalt us; but as we approached the firing continued, and we soon saw that we were to enter in triumph. The whole military and civil force was, in fact, drawn out to meet us, and we were ushered into the town amid such a beating of drums, playing of music, waving of flags, and shouting of voices, that strangers would have thought that at least half a dozen kings were making their entry, not crediting that the view of our geological faces and hammers could be the sole attraction. How-

ever, lest I should be accused of egotism, I will not enlarge on this subject. We dismounted at the principle inn, and were received by all the chief people of the place, who informed us that they expected the honour of our company to dinner. Such an offer could not be refused, and we agreed so far to change our plans as to sleep at Bienne, and proceed next morning on the lake, to Neuveville, where we had made arrangements to take up our quarters, and where, it turned out afterwards, we had been anxiously expected, and the town was to have been illuminated for our amusement.

However, we stopped, as I said, at Bienne, and thence made a short excursion round the town, to look at some uncommonly large boulders of granite, gneiss, and porphyry, which are very numerous on the mountains behind the town, and were interesting when taken in connection with certain flat, polished spots, on the face of the Jura oolite, upon which they were lying. As, however, I must say more on this subject before concluding my account, I will pass it by at present. From Bienne, next morning, we went by the lake to Neuveville, at least some took water, but many preferred walking, as the weather was extremely unfavourable, and there was every appearance of a thoroughly wet day. Notwithstanding the rain, however, all agreed that we ought not to omit visiting the little island St. Pierre—so celebrated as the abode of Jean Jacques Rousseau—and we were put ashore there, but, alas! to very little purpose, as we could neither enjoy the beauties of the island, or see any of the prospects which make it so charming a residence. For want, I suppose, of out-of-door's work, the society held a meeting in the bed-room of the Frenchman's idol, some of the members sitting on three chairs, with which the room was furnished, some on the table, others on the floor, and the rest, of whom I was one, on the very bed on which he had slept. Not being of a very imaginative disposition, I must confess that I was not inspired, and could not discover any very striking proofs of inspiration in the two or three exceedingly dull papers which were read by the members of the society, and completed the business of the meeting. After our "scance" we took boat, and soon found ourselves approaching Neuveville, the information being given by the salutes which were fired, rather than by any view which the heavy and incessant rain permitted us to have of the place.

We could not, of course, do much under such circumstances, but resolved not to be beaten. We went to see a fine example of polished rock in the vicinity, and then returned, dined, and made our way back to Bienne in the evening, as wet, cold, and miserable, as

could well be. Next morning, at half-past eight, I found myself breakfasting quietly at Berne, my geological trip and the meeting of the society, alike concluded.

But now it will be asked, was this all? and was there nothing done in the day or two which elapsed before I met the society? In answer, I have only to say, that, after the most diligent enquiries, it appeared to me that nothing whatever had been done on the Wednesday, but that on Thursday morning—it was on that afternoon that I arrived at Porrentruy—there had been a communication made by Prof. Agassiz, on certain appearances which had been observed in the neighbourhood of glaciers, during a trip in the high Alps.

The observations of this eminent naturalist were original and interesting, but whether altogether well founded I must leave it to others to decide. He had been examining the edges of glaciers, and had come to the conclusion that these accumulations of ice were increasing annually at a very rapid rate. So far he is, doubtless, right: but then he had also examined the surfaces of rock upon which they moved; and from his observations he gave, as a theory, that the instances of rock polished naturally on the Jura limestone mountains, were owing to the sliding of glaciers upon them in former times, when, in all probability, the whole of the great tertiary valley of Switzerland was covered with water. His proof of this seemed to rest on the fact that these extensive flat surfaces of rock are marked with large and small furrows and scratches, all horizontal, and presenting the same phenomena which really occur when a large mass of mixed ice and stones is dragged forcibly along an inclined surface.

In the starting of this theory, and the discussion consequent upon it, seemed to me to consist the whole business of the meeting; and there certainly was much talk concerning it both at Bienne and Neuchâtel, where the best instances of the polished rock are found. But I feel bound to add that, beyond this, no subject of the slightest general interest was publicly discussed, nor was any agreement of opinion produced by all the talk on the one matter in dispute. What the society may, on other occasions, do, or have done, I am unable to say: I only speak in the present tense, and my judgment is given without the slightest intention of finding fault; for I cannot but think that the great use of all such assemblies is rather the bringing together fellow-workers in the same field, and so promoting good feeling and enlarged views, than, by the communication of new discoveries, to advance immediately the cause of

science. I will only add that I parted from the numerous acquaintances I then formed with feelings of mixed pleasure and regret:—pleasurable reminiscences of a most agreeable week, and regret that a long time might elapse before I again met so united and friendly a party.

D. T. A.

IL BANCOLO.

BY ANÉDÉE DE BAST.

ON the 15th of March, in the year 1735, the greater part of the inhabitants of Marseilles assembled on the Quay to witness a solemn and affecting ceremony. The monks of the order of the Mathurins* had conveyed from Algiers, Tunis, and Morocco, a number of Christian slaves, whom they had ransomed. The vessel bearing the poor captives and the monks who had redeemed them had entered the port on the preceding evening, and its arrival becoming known throughout the city, infused a vivid emotion of joy into the bosoms of a multitude of families, who hoped to find relations and friends among the captives whose chains a magnanimous charity had broken.

A procession, consisting of the clergy of the different parishes, preceded by the various societies of the citizens bearing their banners, the magistrates, the superintendent of the province, and the governor and his staff, proceeded to the port which had been occupied since break of day by an immense concourse of spectators. The vessels in the harbour raised their national flags as a sign of rejoicing; the cannon were fired at short intervals from all the forts of the city, and mingled their thunder with the sound of the bells of the different churches.

* The Mathurins, also called Fathers of Mercy (*Pères de la Merci*), devoted themselves exclusively to the ransoming of slaves. They travelled in every country faithful to the Holy See, collected alms, and each year negotiated with African princes for the ransom of many hundreds of captives. Monks of the order would frequently remain as hostages, either for the purpose of redeeming a greater number of slaves, or as security for the payment of debts which they could not immediately discharge.

The ransomed captives, many of whom bore marks of the cruelty of their masters, now landed on the quay. As they stepped on shore some prostrated themselves upon the earth, and kissed the soil of that France which they had despaired of again beholding. Others called with accents of joy to friends whom they recognized among the crowd. Tears of tenderness glistened from every eye; while, in the midst of this scene of universal happiness, the venerable monks, the authors of this sublime felicity, walked calm and silent through the crowd that overwhelmed them with benedictions.

The procession went to hear a solemn service of thanksgiving at the cathedral, after which each captive was restored to his family or his friends. Those who had neither relations nor acquaintances in the city were received by the inhabitants, who furnished them, after a few days of repose, with the means of returning to their homes.

A great number of strangers had been present at the touching spectacle: each had paid his tribute of admiration to the fearless intrepidity and superhuman devotion of the Fathers of Mercy. When the ceremony was ended, one of these strangers, who, by his accent and dress, might be known for a Venetian, approached one of the monks, and thus addressed him:—"If I am not deceived, the number of captives whom you have ransomed amounts to more than two hundred." "It is so," answered the monk. "How many still remain in slavery in Africa?" continued the stranger. "Alas! Sir, more than six hundred," replied the holy man. "Our receipts during the last year have not been considerable. On this occasion we have been able to ransom only a few aged Christian captives; and we were constrained to leave as hostages three of our brethren, in order to redeem three unhappy Italian slaves, whose age and infirmities seemed about to consign them to the tomb." "Three Italian slaves?" interrupted the stranger, with a vivid expression of interest; "and to what part of Italy do they belong?" "They are natives, I believe, of Sicily," said the monk. "Their names?" demanded the stranger. "I shall be able to satisfy your inquiry," said the monk; "for I have a list of all our unhappy brethren."

He then drew forth a scroll of parchment, and cast his eyes over it. "Here are the names which you wish to know:—First, Paolo Bancolo, aged eighty-six, officer of the customs at Palermo, captured, in the year 1700, at the Isle of Syea." "Heavens!" exclaimed the stranger, "are you not deceived in that name?" "Read for yourself, Sir," said the monk. "I see! I see!" exclaimed the stranger; "it is indeed Paolo Bancolo! But now tell

me, oh, my father ! where is the venerable old man ? tell me where I may find him." " Paolo Bancolo," said the monk, astonished at the change in the countenance of his companion, " is at this moment in the house of Signor de Langeron, governor of Marseilles. The courageous and generous Langeron is not satisfied to manifest his devotedness when his country is distracted by war or ravaged by pestilence, but he is also the great hospitallier of Marseilles, even in the time of prosperity and peace. Yes ! I repeat, Sir, Bancolo has indeed found an asylum in the house of Langeron ; and he will not leave it but to set sail for his native land." " I thank you, my reverend father, a thousand times," exclaimed the stranger, as he kissed with ardour the hands of the monk ; " but I wish to meet you again : where can I find you ?" " At my convent," said the monk, " which is distant but a few paces from this spot." The stranger bade adieu, and departed.

He immediately ran with all his speed to the street leading to the residence of the governor ; and it was not until the moment of his departure that the monk observed that he was followed at a respectful distance by two lackeys dressed in rich liveries.

The night was dark : the bell of the abbey of the Mathurins had already summoned the inmates of the convent to vespers, when the porter announced to the superintendent father that two strangers awaited him in the *parloir*. He attended upon his visitors, and with the first glance recognized in one of them the stranger who had conversed with him in the morning, and in the other the aged captive, Paolo Bancolo. But the appearance of the latter had changed : the tatters of the slave were replaced by the sumptuous vestments of the wealthy man. He tenderly embraced the Father of Mercy, and once more gave utterance to expressions of the deepest gratitude. " Paolo Bancolo," said the superintendent father, " if we may judge from appearances, God has in reserve for you a destiny at once great and happy. Be grateful, Bancolo, for thy lot ; and in the brilliant sphere in which thou art about to move never forget those unhappy beings who still languish in servitude, and whose remembrances of the land of their nativity and its liberty can never be attended but by sighs and tears. " Ah, no !" answered the stranger, " Paolo Bancolo can never forget his companions in misfortune, but, on the contrary, will use every means in his power to soothe their sufferings and to break their chains. And I solemnly engage myself, in your presence, to do this. I am his son ! and it is I who am his pledge." " And do I indeed behold in you the son of this old man ?" said the monk, with an intense expression

of astonishment. "Yes, reverend Sir," said the stranger; my father was torn from the bosom of his family whilst I was yet an infant in the cradle; and it is to-day for the first time that Heaven has granted me the inexpressible satisfaction of beholding my parent. Eight days after my birth, my father, who, as you already know, was an officer of the customs at Palermo, was invited to go to the isle of Syea by some Greek merchants to whom he had rendered important services. He embarked at the port of Catania, and was never heard of more. My mother despatched to Syea messengers in whom she could repose confidence. The Greek merchants affirmed that they had not seen my father, and that the vessel in which he had embarked had never arrived at Syea. It was generally believed that he had perished: and you may judge of my mingled feelings of astonishment and delight when I this morning heard from your lips the name of Paolo Bancolo. The name, the age, the date of his capture, all led me to believe that I was not deceived by the language of my heart. I hastened to the house of the Count de Larengon: my eyes fell upon the captive, and in an instant I clasped my father to my heart!" "How inscrutable are the decrees of Providence!" exclaimed the monk. "But had you, Paolo, no means to inform your family that you still drew the breath of Heaven?" "We were captured," answered the aged man, "when we were scarcely a few leagues at sea; and on our arrival at Tunis we were sold to the Dey, and were sent to assist at the works which were then in progress at a fortified town sixty miles inland; and it was not until my age and infirmities rendered me unfit for further services that I was sent back to Tunis, where I was happy enough to meet you, my reverend father, when you restored me to freedom by leaving two monks of your order as hostages in my stead." The son of Paolo Bancolo here interrupted the narration of his father. "How much," said he, "do you think would be requisite for the ransom of the six hundred prisoners who still remain in servitude at Tunis?" "The Mahommedans," replied the monk, "are relentless traffickers in humanity: they are not only rapacious, but almost insatiable. I still think, however, that with the assistance of five hundred thousand livres, we might at length succeed in redeeming all our brethren from captivity." "Then, my reverend father," answered the stranger, "it depends only upon your pleasure to receive this sum. You have been long inured to travel." "Three-fourths of my life," said the monk, "have been passed in foreign lands. I have made long voyages at sea; I have crossed the deserts of Africa, sustained by my confidence in God, and urged for-

ward by my love of mankind. Judge, Sir, therefore, if I can shrink at a single voyage, the object of which is the deliverance of all our unhappy brethren." "Meet me, then, next year," said the son of the captive, "on the evening of the day preceding Ash-Wednesday, at the palace of Orsini, in the Square of St. Mark, at Venice; you will find me there. Remember, my reverend father, that the fate of our brethren in Africa depends on your punctuality."

After having again tenderly embraced the excellent Father of Mercy, the elder and the younger Bancolo bade adieu to him, and departed. A splendid equipage awaited them at the door of the convent, and bore them rapidly towards Italy.

On the evening of Shrove Tuesday the following year, the Theatre of Fenici, at Venice, presented an appearance the most splendid that imagination can conceive. The eight ranks of boxes were filled by spectators, who comprised all that was most distinguished in Italy for youth, for beauty, opulence, and rank. The dazzling lustre diffused by twenty-five thousand lamps of silver, heightened by the reflection of diamonds, rubies, pearls, amethysts, and bracelets of virgin gold, produced an effect so striking that it seemed that all Italy, as with one consent, had met that night at the Theatre of Fenici, with the design of uniting in one spot the highest effect of every art. The Roman ladies might be known by the distinctness of their features, and the Bolognians by the loveliness of the exquisite smile which perpetually played upon the countenance and irradiated the expression; the Milan lady might be recognized by the slender beauty of her waist; the Neapolitan, by the ardent fervour beaming from her eye; the Mantuan, by the transparent whiteness of her skin; the Florentine, by the glossy blackness of her hair; and the Venetian, by the graceful bend of her recumbent figure. Amongst the spectators might be seen scions of many of the most illustrious families of both ancient and modern Italy: the descendants of Gracchus, Scipio, Sforce, and Medici, the successors of Michael Angelo, of Titian, of Caravages and Bernin, were on that evening united in the Theatre of Fenici. All that was most illustrious in science, the arts, in rank, in office, in political power and intellectual greatness, was here assembled by Pleasure, that gentle and beneficent goddess, whose power is recognized throughout the world, and who on that evening, from her throne of sapphires, where she was supported by her attendants, Fashion and Good Taste, diffused her gracious influences over this enchanted paradise.

The picturesque and poetic costumes which, at an early period of

her history, prevailed in Italy, had, towards the middle of the eighteenth century, entirely disappeared ; yet, notwithstanding the French fashions which were then in vogue, the natives of each province still retained some relics of the ancient costume. It was thus that the Venetian ladies still wore the ancient Moorish plume, and the breast-plate studded with stars of gold and silver. The gentlemen were, in general, dressed after the French fashion ; and the ancient Milan dagger, and the old Roman poignard, which, in the last generation, lent so much elegance to the figure of our fathers, were replaced by the modern sword with the steel handle. The cane, which is now universally worn, both on foot and horseback, by all aspirants to fashion, though it may be a great improvement, is certainly far less graceful than a sword.

The ladies were also provided with weapons. They bore immense nosegays formed of the flowers of the rose, the pomegranate, the tuberosc, the jonquil, and the lily ; and before the commencement of the play amused themselves with stripping off the leaves and strewing them on the young patricians assembled below, which, falling on their heads and shoulders, seemed to convert the pit into an extended plain of undulating verdure.

But the ordinary festivities of the Carnival would not have formed an attraction sufficiently powerful to collect this magnificent assembly. A much stronger motive was united to the desire of joining in the annual festivity. Rumours had been circulated in every part of Italy that the great Polichinelle was about to retire from the stage. It had been announced that on this evening he was to appear for the last time, and that this would be the last opportunity of witnessing the splendour of his talents in the full lustre of their glory. All Italy had, accordingly, risen as one man to pay in crowns, dithyrambics, and testimonies of every description, the tribute of admiration and gratitude to that man who had been, during so long a period, the presiding genius of their amusements.

Polichinelle stood alone ; he united in himself all the vices and virtues common to humanity. Vain, presuming, avaricious, quarrelsome and cowardly, incredulous and superstitious, he was, at particular seasons, and under the influence of peculiar impressions, generous and compassionate, and, according to circumstances, a philosopher or a spendthrift. But, whether under the influence of his good or evil propensities, a charming simplicity, which is one of the most prominent features of his character, is always predominant. His reasoning, though sometime approaching to coarseness, is just and power-

ful ; his manner is marked by a comic vein ; and his conversation is not less original than his figure. The person of Polichinelle may, indeed, be said to be almost hieroglyphic. His countenance bears testimony of the greatness of human nature ; but it is, at the same time, deeply furrowed by its sufferings. His nose is aquiline, which is an indication of courage ; but it also betrays his intemperance. His forehead is high and expansive, resembling that of the deity of Olympus ; but the conflicts of those passions to which he is naturally subject have, in the course of years, distorted and contracted the surface of the noble seat of intellect. His eyes are large, but their lids restless, like those of an eagle which has too frequently looked on the sun. His mouth is beautiful, his teeth are ivory ; but his smile, which is to the mouth that which expression is to the eyes, has something diabolical, and a peculiar sneer difficult to be described. The hair of Polichinelle is grey, and his figure distorted ; but these defects, which are only the infirmities inseparable from age, are lost in the extreme gaiety of his spirit and poignancy of his wit. The general effect of the character of Polichinelle is a striking instance to how great an extent that vivid, natural, and homely humour, and easy gaiety of manner, will compensate for plainness of feature and deformity of person.

Bancolo had, in common with most men of superior talent, a presentiment of the character in which nature designed him to excel, and well knew how to draw the greatest possible advantages from all the peculiarities of his versatile genius. To the study of this character he had diligently applied himself ; and such was his success, so intimately did he appreciate his part, that the player vanished, and the audience saw and applauded, not Bancolo, but Polichinelle. His industry and talents did not fail of their reward. He was universally acknowledged, even by his rivals of Naples, Palermo, Bologna, Pisa, and Florence, to be the greatest actor in the character of Polichinelle. His success extended his reputation : he crossed the Alps and the Appenines. Polichinelle became an object of interest to the inhabitants of Madrid, Vienna, Paris, and Berlin. Every part of Europe was visited by Bancolo, and every where did he reap golden harvests, and at each place extended his fame. He returned, however, (like a submissive and grateful child), into the bosom of his native land, there to display to the city of his nativity the last efforts of his talent, and to offer up upon the altar of his country the last incense of that genius which he designed to withdraw for ever from the world. Bancolo ! we shall see him no more : it is the last time of

his appearance ! This evening he will bid us adieu for ever. The loss sustained by France and Italy is greater than words have power to express. The retreat of Polichinelle is a national calamity ; for, as a land of heroes and artists, Italy is no more !

Accents of grief are heard on all sides : still, females might be seen to smile under the slender covering of their veils. Streams of melody flowed from an orchestra worthy to accompany a choir of angels, or to regulate the revolutions of the spheres. Ices and the most delicious drinks were served up by Ethiopian attendants ; flowers were strewed on every side, and falling on the shoulders of the young military officers, added to the lustre of their golden epaulettes and brilliant uniforms.

Bancolo surpassed even himself, now exciting his audience to a roar of merriment, and now melting them to tears. The theatre resounded with the applause of twenty thousand voices, and cries of " Bravo, bravo, bravissimo per Bacho !" were echoed from side to side. In another moment every face was suffused with tears ; a deep silence then pervaded the assembly, broken only by sobs.

The females, whose forms were covered with thin veils, viewed from above, resembled those embalmed beauties, the daughters of kings, who sleep in silence in the deep caverns of the pyramids of Giseh.

The adventures of Bancolo himself formed the subject of the drama. He was represented as an orphan, a beggar, a nobleman, a spendthrift, a sailor, a soldier, a priest, and a merchant ; and the meeting with his father, the poor captive of Tunis, closed the play, the character of which was so diversified as sometimes to excite the boisterous mirth of children, at others to draw tears from the eyes of men. Sometimes, too, the effect suddenly changed from the most noisy merriment to the deepest distress. The great magician was Bancolo. He seemed to possess the heart of his audience, so as to be able to draw forth at pleasure laughter or tears. As the curtain fell, the assembly rose in a mass, and with a voice resembling thunder exclaimed, " Bancolo ! Bancolo ! the illustrious Polichinelle ! let him come forward." Bancolo was arrayed in the uniform of a warrior in his triumphal costume, and as Polichinelle.

The plaudits instantly burst forth with renewed fury ; and cries of " Long live Bancolo !" resounded from all parts of the house. Such demonstrations of rapture might almost have led to the supposition that Venice had recovered her ancient dominion over the ocean, and that the nuptials of her doge with the Adriatic Sea were about to be

celebrated. "Long live Bancolo!" echoed a thousand voices. The welcome given to Polichinelle resembled that accorded to Othello, when he appeared for the first time in the Great Canal, surrounded by his soldiers bearing banners reeking with Turkish blood. But Bancolo removed his mask, and the intoxicated audience beheld the natural figure of a man whom they had never before seen but under a borrowed form. The change only increased the vehemence of the acclamations; the immense edifice of the Theatre of Fenici seemed about to be buried under the irruption of applause, which burst as from a volcano.

No sooner had Bancolo signified his desire to be heard than the noise ceased; and every ear became erect, as if in expectation of renewed delight. The whole assembly instantly sunk into the deepest silence. Bancolo advanced towards the three hundred lamps which illumined the stage, and with a tremulous voice spoke as follows:—

"GENTLEMEN,

"You see before you a man deeply impressed with gratitude for your kindness towards him, of which you have to-night given a crowning instance. I render thanks to that Being whose name reverence forbids us to pronounce, that I have enjoyed, during a quarter of a century, the happiness of being able to please you. Yes, I thank that power to which every country is indebted for those men who have distinguished themselves in arts, in arms, or in virtue. Those individuals in whose noble natures may be distinctly traced the hand of the divine artist, are alone worthy of that applause which you have been pleased to lavish upon me. You have hailed and accepted me. Receive, Gentlemen, my most cordial thanks, or rather retain for ever the remembrance of that gratitude which at the present moment glows in my heart. I shall have, in my retreat, the consolation of reflecting that I have never, in the exercise of my profession, wilfully deviated from the path of rectitude; and that I have used my utmost efforts to soothe and alleviate the sufferings of my country. Gentlemen, Farewell!"

Renewed acclamations resounded through the assembly. But now other testimonials were added to the former manifestations of sympathy. The ladies threw flowers on the stage; sonnets in French, English, and Italian, mingled with crowns and garlands, were showered at the feet of Bancolo. Princes and peers tore from their sides

their badges and decorations, and cast them at the feet of him who had so well understood the paramount duties of a comedian.

The figure of Bancolo was observed to bend forward : he wept ! He raised his hand, and silence was instantly restored. "Gentlemen," said Bancolo, "this is the last day of the Carnival at Venice. In one hour this magnificent theatre will be transformed into a ball-room, and you will return to it under different costumes. The nobleman will be lost under the vestments of the peasant, the baron will appear as a page, the page as a man whose hair is silvered with age, and the virgin as a dowager : every age, every rank, will be inverted until the first rays of Aurora announce the return of day. Great will be the delight which you will derive from the amusements in which you are about to participate. But, Gentlemen, allow me to ask you if you would not feel an emotion of gratitude towards that man who, though only a poor stage-player, would suggest to you the means of sanctifying, by a holy and beneficent action, the diversions to which you are about to resign yourselves ? At the moment, Gentlemen, when to the accents of enchanting music you dance in the midst of delicious perfumes, brethren and christians languish in chains, or struggle in the agonies of death. Gentlemen, I implore you, in the name of Heaven, to succour those unfortunate beings who groan beneath the iron hand of the infidel, and who at this moment, perhaps, extend their hands to you as their only resource. Let us place beneath the gracious protection of a pious act our several satisfactions : you the pleasures which you will this evening enjoy, I my repose in the bosom of my household gods. A holy monk of the order of the Redemption awaits your offerings in the Square of St. Mark. Thither I go ; follow me, Gentlemen, and you, noble Ladies : it is, perhaps, the first time that an act of christian charity has been advocated by the voice of Polichinelle."

The audience rose. Polichinelle slowly descended the steps of the theatre, followed by the whole of the brilliant assembly which had been collected within its walls. They were received by the acclamations of the crowd. The cavalcade proceeded in this order, escorted by gondolas, which attended it as pages until it arrived at the Square of St. Mark. In the centre of this Square, on a pedestal of bronze, stood the ancient lion of Venice, the genius of the city, who was doubtless conscious of the scene which was passing—a scene which recalled those mellow days when Venice was conquered from the dominions of Neptune, and proudly raised, for the first time, its stately head above the waters.

The venerable Father of Mercy was found seated on a chair of ivory on the threshold of the palace of Orsini: on his right was the apostolic prothonotary, on his left a secretary of the republic. The hall of the palace was hung with the richest tapestry, and illuminated with lamps of silver. Polichinelle, followed by the brilliant cortège, slowly advanced under the silent arcades of the palace. Scarcely had he entered when the Polichinelle suddenly vanished, and Bancolo appeared in the costume of a noble Venetian.

He entered, and placing a purse of gold at the feet of the monk, said, "My reverend father, I fulfil my promise, and restore to you the ransom of my parent. Implore Heaven to accept that ransom which has been offered for me. "My son," answered the venerable Mathurian, "in the multitude of the offerings which I have received to-day, that of Polichinelle is not the least worthy, or the least acceptable in the sight of Heaven."

THE STAKE :

A Poem.

IN THREE PARTS.

"It is a woe 'too deep for tears' when all
 Is reft at once, when some surpassing spirit,
 Whose light adorned the world around it, leaves
 Those who remain behind nor sobs nor tears,
 (The passionate tumult of a clinging hope),
 But pale despair and cold tranquillity,
 Nature's vast frame, the web of human things,
 Birth and the grave, that are not as they were."

SHELLEY.

LADY! if over my unlearned page
 Thy grave eye wander with regard severe,
 Questioning whether aught of truth lie here,
 Worthy thy thoughts an hour to engage,—
 Bethink thee, O! most gentle Doctoresse,

Of one who oft hath listened at thy feet
 In the deep woodlands, or the green recess
 Of far-off meadows, whose still quietness
 Was broken only by the bee's low humming
 Among the hay, or the faint chimes far-coming
 From the unseen hamlet ; to whom thou hast made
 The names revered of priest and bard more dear
 By dim remembrance of those moments sweet,
 Fleeting in idlesse under verdurous shade.

 PART I.

“ For who, to dull forgetfulness a prey
 This pleasing anxious being e'er resign'd,
 Left the warm precincts of the cheerful day,
 Nor cast one longing, lingering look behind ?”

Elegy in a Country Churchyard.

O ! TRUTH, thou art a fearful thing,
 A seraph with such dazzling wing
 That whoso looketh on thy rays
 Would fain, though mist and darkness holds thee ;
 For ever and for ever gaze
 Upon the dim clouds that enfold thee ;
 Poring through many a volume weary,
 Toiling through page of schoolmen dreary,
 In faint hope that their mazy line
 Some thread of thee might yet entwine :
 But, oh ! (like those dread angels standing
 At Eden's portal—closed for ever !
 Never their radiant guard disbanding,
 Lest mortal footstep should endeavour
 To tread once more the odorous gloom
 Where bears the Tree of Life its bloom),
 If beautiful the form thou wearest,
 A weapon, too, of flame thou bearest ;
 And daring need the student be
 Beneath its blaze who seeketh thee.

Through the winding tower stair,
 Through the stifling dungeon air,

Through the narrow turret cell,
 Within sound, above, around,
 Echoed by the hollow ground
 Of the awful tolling bell
 That doth peal the frequent knell ;
 Through the death-fire he must grasp thee,
 Who, with heart and nerve unshrinking,
 From the cup thou pourest drinking,
 Undismayed would own and clasp thee.

In the quiet greenwood wandering,
 Over deep thoughts simply pondering,
 Unawares my foot hath found thee,
 With all pleasant things around thee ;
 But thyself, oh ! far more sweet
 Than ought blossoming at thy feet.
 From dark dreamings thou hast freed me,
 And I follow'd thy far speeding
 Full of thee, and little heeding
 Whither thou at last would'st lead me.
 And lo ! here, in dark walls chainèd,
 From all I so love restrainèd ;
 From the happy summer glades,
 From the flower-lighted shades ;
 Shut out from the open sky,
 Fettered and condemned I lie ;
 And if I persist to cherish
 Thy pure words, by men denied,
 And in love of thee abide,
 For thy sake and on thy side
 In my green youth I must perish.

'Tis not for my father's child
 At the sight of death to falter ;
 For my country's denizen,
 Mid evil times and evil men,
 From her elder days' pure altar,
 From the doctrines undefiled,
 And the holy laws compiled
 Far in the ancient eastern wild,
 To turn back to the dreamings rude,
 The traditions that delude

The misguided multitude !
 But the world is beautiful,
 All around the land is full
 Of sweet voices, music making,
 In the woodlands, night and day,
 Their deep-breathèd quiet breaking
 With carolling and roundelay.
 And a hard thing surely were it,
 For a young and care-free spirit,
 Thus to hear the heavy knell,
 By malignant powers rung,
 'Tolling its forlorn farewell,
 And thus hurriedly be flung
 (Like the recreant angels thrown
 From the heights of their lost heaven)
 Far into that dark unknown,
 Where no face of love to meet me,
 No familiar voice to greet me,
 With foretaste of welcome given,
 Mingles with the awful shade
 'That upon my heart is laid,
 Like the ominous shadow cast
 From a vault with dim lamps burning,
 Whose gate with light step may be passed,
 But from whence is no returning.

Heavy the night's shadow lies
 On the hush'd abodes of men,
 And the quiet-breathing skies
 Look down peacefully as when
 I have watched their blue vault darkening
 Over my green native dells,
 And, with ear attentive hearkening,
 Have caught the far city's bells,
 Or the warder's evening horn,
 On the freshening night breeze borne.
 With a ripple hardly heard
 'The still river passeth by ;
 Hardly is the image stirred
 That deep down its bed doth lie.
 The crescent of late-burning lights
 Seen, on dark and quiet nights,

Imaged in the shadowy stream,
 By the uncurtained lattices,
 Which, where the long bridgeway lies,
 Over its gray arches gleam.
 The high narrow chink that lighteth
 Dimly these dark turret walls,
 My wearily longing eye inviteth
 To look on the far-stretching plain
 My foot must never tread again,
 And my thirsty ear delighteth
 There to catch the distant falls
 Of the melancholy chime
 That marketh the sweet vesper time,
 Beyond the pageant city's sway,
 In lonesome hamlets far away.

Oh ! dispeller of the vapours,
 The thick mists that error raiseth,
 Diming her illusive tapers
 Wheresoe'er thy bright torch blazeth :
 Hast thou, too, no hidden spell,
 Canst thou no sign of power tell,
 To disperse the oppressive gloom
 That doth hover round the tomb ?
 Surely in the awful folds
 That from human view have wound thee
 Must the secret knowledge lie
 'To thread its vale of mystery,
 And to human queryings fond
 Light up that which lies beyond.
 Oh ! too late, too little shewn thee,
 Would that I had earlier known thee !
 Would that in the page which holds,
 Under every meaning line,
 Some deep-buried gem of thine,
 I had sooner sought and found thee !
 Come what may, and come what will,
 On and on I follow still ;
 Trusting that who, with true heart bent,
 Thee seeketh with sincere intent,
 Though the path with toils be rife,
 And the struggle be for life,

Yet the issue of the strife
Never, never shall repent !

Like to the pleasant and heart-freshening breath
Of sweetest summer, when one warm still day
Breaks through the chill mists of a wintry spring,
And hedge and orchard with gay blossoming
Their unrobed boughs all hastily array,
Too soon to perish—upon England fell
Thy bright, brief reign of promise, O ! fair son
Of early-fated Seymour ! and though well
The bright age, like the late prevailing sun,
Of thy sweet sister Temperance, upbuilt
All the fair works dismantled and undone
By the lost child of wrongèd Arragon,
Yet could they not restore the pure blood spilt,
The treasures pour'd into the lap of death.

PART II.

“ And of this busy human heart aweary.”—*The Picture.*

NAME of torture ! name of terror !
Weapon in the hand of error !
Lending aid to closer bind
Chains upon the human mind,
Which a moment's space may wear them,
But to atoms then will tear them :
Phantom to the faint and fearful,
Haunting memory to the tearful—
The young hearts whose well-springs lie
Within reach of misery :
Husher of the heart's long ache,
Peace-bestowing, restful Stake !
Would my weary steps had found thee,
And my tired arms might cling round thee,
And my heavy head at last
At thy foot might be down cast.
Lonely, lonely, on I wander,
Pathless is the world to me ;

And heaven's bright lamps burning yonder
Only light me on to thee.

By the love of passionate years !
By the grief that hath no tears !
By the memories unsleeping,
In my heart their vigil keeping ;
Of an angel wing departing,
A good spirit upward starting ;
A minist'ring form that had watched o'er me,
Vanishing in thin air before me !
Fairest of the many gates
At which death's dark seraph waits,
(The invisible gates, that lie
Undiscern'd of human eye),
Portal of eternity !

MINE thou art, and thou shalt be :
Unfold thy bright arch to me !

Vain quest ! idly to beseech
That which it may never reach !
Holy must the footstep be,
And the heart from shadow free
Of earth's shrines of imagery,
That to heaven would enter through thee.

*Holy were the martyred dead,
Holy were the lives they led ;

And no unholy step may tread

In the path that leadeth to thee.

Worcester's aged head hath pass'd thee,
London's shadow hath o'ercast thee ;

And sad Canterbury, grieving

For an evil hour's achieving,

Underneath thine arch of flame

Hath taken shelter from the shame,

The remorseful agony,

Of a wrung heart's deep repenting,

For a faint will's brief consenting ;

The unsteady step lamenting

That had turned aside from thee.

* First Chapter of the First Epistle of St. Peter, verses 15, 16.

Oh ! a dower, a gift unblest,
 Lies within the human breast ;
 Gulfs, whose depths no line may know
 Echo to its throbbings low ;
 And the bosom of the deep
 Knoweth more of rest and sleep.
Who the measure hath ever taken
 Of the emptied* heart's extent ?
Who the echo shall awaken
 That can scale its firmament ?
 Ever, as light words fall there,
 Hollow its abysses ring ;
 And the very summer air
 Enters like a fearful thing,
 Bidding at its presence rise
 Hosts of buried memories.
 Lost delights and tones departed,
 Music loved when lighter hearted,
 Footsteps that shall come back never,
 Gladness that is gone for ever.

Oh ! our life was quietness :
 Never shadow of distress
 From the cold world's pageants flung,
 O'er our roof its darkness hung,
 Or our glad hearth's lamp of pleasance
 Dimm'd by its defiling presence.
 For to him, whose clear gaze bended
 Toward the far from mortal view,
 And whose every purpose tended
 To the enduring and the true,
 What were ought that owed its birth
 Unto time and unto earth,
 Saving as life's changeful thread
 On to the unchanging led ?
 And my soul, a still lake lying,
 In his shadow silently,
 To his every look replying
 With the wave's fidelity ;
 Echoing back his thoughts unspoken,

* Nahum, chap. ii, verse 2.

As the lake, by winds unbroken,
 With a heave, its hush'd breast under,
 Murmurs to the coming thunder:
 From the image, calm and holy,
 By his loftier spirit thrown
 Down into its bosom lowly,
 Took its colour and its tone;
 And I breathed the breath of heaven,
 And I felt his feelings high,
 Till to me, too, there seem'd given
 Life that was not born to die,
 Making my fill'd heart partake
 Peace that never storm could break.

And the onrush of dark days
 Steadied but our steadfast gaze
 On the shadowless for ever,
 Where the storm-cloud should reach never.
 And the shuddering grasp of ill
 Made our deep hearts deeper thrill,
 And the cadence musical
 Had no sorrow in its fall;
 And the dungeon's air before me
 Like an Eden gale blew o'er me,
 For its grated twilight dim
 Clearer shewed me only him;
 While the aspect of the tomb
 Like an angel's face looked on us,
 And we blessed the welcome doom
 For the truth's sake fall'n upon us;
 For to him the opening grave
 To his far home welcome gave:
 Like the threshold, beckoning whence,
 Angel fingers called him hence,
 And sweet voices' distant swell
 Chiming on his spirit fell.
 And of bliss, what more intense
 Under heaven could fate dispense,
 Than—I reck'd not how nor why—
 Side by side with him to die?
 Mine his faith and mine his God,
 Fearless in his steps I trod;

And my soul, too full to know
 Need of worldly store or show,
 Knew not that its treasure lay
 Within reach of earth's decay ;
 Felt not that its hopes were given
 Unto earth, and not to heaven ;
 Saw not, leaning on a reed,
 The dark doom such guilt incurs ;
 Thought not, dream'd not, that *its* creed
 Was the lost idolater's.

"Twas not till in that wide hall,
 Where, with rude throngs gathering round us,
 We but felt that danger's call
 To each other closer bound us,
 On my hush'd ear, like a knell,
 Cold the judge's accents fell.—

*" In remembrance of thy birth,
 In memory of thy sire's worth,
 In compassion for a soul
 Warp'd by evil men's control,
 Lady, the Queen's majesty
 Pardon extendeth unto thee."*

As one who, hearing, heareth not,
 I nought comprehended wholly ;
 And as one who feareth not
 Stood I in that fearful spot,
 And the truth came to me slowly :
 Part they might, and part they would,
 Whom I thought no mortal could !
 And, as if the spirit's power
 Could avert the evil hour,
 As if strength of soul could charm
 Fetters from the lifted arm,
 Wildly I appealed to him
 Who stood manacled before me,
 With commanding lip and eye,
 Alterless as destiny :
 But all around me seem'd to swim,
 And a dizzy mist came o'er me ;
 And all memories, sad and pleasant,

Past and coming, and dreary present,
 Fast before me seem'd to fleet
 As I flung me at his feet.

From that hour I nothing noted ;
 Night and day before me floated :
 All things pass'd me as in dreaming
 With a strange unreal seeming.
 In a stupor dim and gloomy
 Time and place were nothing to me ;
 Heedless of all human pity,
 Lonely in the thronged city,
 Without sense I wandered on,
 An unmoved automaton ;
 Till once more his countenance,
 Mingled with the dim forms blending
 In my wild and hopeless trance,
 And my listless footsteps bending
 Whitherso'er the phantom fled,
 On I followed where he led.
 Thousands, thousands, onward speeding,
 Bore me with them, all unheeding,
 Under tower, under gateway,
 On towards the wild heath lonely,
 With fixed purpose hurrying straightway :
 I was following him only.

Like the wild, swamp-haunting fire,
 To be seen, but ne'er o'ertaken ;
 Never further, never nigher :
 There he gleamed with air serene,
 Through the nightmare forms between,
 And his calm brow as unshaken
 As if all that earnest throng
 At his bidding moved along.
 There, as one whose glance was full
 Of a calm security,
 Seing the invisible,
 Conscious of infinity,
 Measuring human law and power,
 The fell sway of its brief hour,
 By the soul's eternity.

On he passed : his head was bare,
 And the sighing summer gale
 Lifted his dark shadowing hair
 From his forehead high and pale ;
 And about his temples play'd,
 As so often it had done
 When at vesper-time we stray'd,
 Watching down the western sun
 In the woodlands of our home,
 And heaven's night-lamps, one by one,
 Lighting in its purple dome.

On, in the deep joy of one,
 Who, this world's dark night-watch ended,
 Joys to see the orient sun,
 By morn's golden clouds attended.
 They who gazed with little heed
 ONLY gladness there might read ;
 But to mine eye, used to trace
 Ev'ry line of that still face,
 In its aspect there lay hidden,
 Like a masquer come unbidden,
 The deep shadow of a dread,
 And a sorrowful foreboding,
 As if, far beneath it spread,
 Some sad memory lay corroding.
 And he moved with steady eye
 Fixed upon the distant sky ;
 As if from some haunting woe
 Its pained vision would retreat ;
 As if in the crowd below
 Were an eye he dared not meet.

As the throng moved so moved I,
 And when they stopp'd suddenly
 I too stood, though why not knowing ;
 For I nothing saw but him,
 Where, above the dense mass shewing,
 Towering rose his figure high
 Between me and the far sky ;
 'Till a burst of smoke rose dim,
 Black and massive, like a cloud,

Folding him in its dark shroud.
 At that omen I awoke ;
 Starting, through the ring I broke,
 The dark-cowled ring that bound him :
 Passionately I clung around him.
 Hurried were my words, and few ;
 What I said I little knew,
 But their import and their tone
 O'erflow'd with a wild despair :
 " *Under heaven I am alone,*
 Oh ! go not without me there !"

Fetter'd by the bolt and chain,
 His arm might not hold me now ;
 But his head a moment's space
 Mournfully bent o'er my face,
 And his tears, like heaven's rain,
 Fell upon my aching brow ;
 And his lips one moment press'd me,
 And he, fondly murmuring, bless'd me :
 And that hour our fate had sealèd
 Far as hell and heaven asunder,
 And the awful doom revealèd
 To the human heart that trusteth
 In the creatures of a day ;
 And where waste and canker rusteth
 Hath built up its shrines of clay,
 My lost spirit had come under :
 But from his death-pyre they tore me,
 Back into the crowd they bore me,
 And the chant of monkish singing
 Like a death-howl pealed throughout me ;
 And like demon fingers clinging
 Hung their ruthless grasp about me :
 And up to the unlistening sky
 Rose my shriek of agony !
 Never, its blue arch below,
 Rang a cry of deeper woe !

" *Clemence !*" 'twas his voice that broke
 The confusèd clamour through,
 And its thrilling accent spoke

With a meaning I well knew.
 " *Clemence !*" its low under tone,
 Drowning all those sounds of hell,
 Deep into my heart alone
 Like unearthly echoes fell,
 Bidding its tornado sleep,
 As a word once hush'd the deep :
 And I folded on my breast
 The cold hands that shook and shiver'd,
 And to calmness I compress'd
 Firmly the shut lips that quiver'd ;
 And before the high control
 That had strung my inmost soul,
 With a strength no voice could draw
 From its fathomless abyss,
 Save the one whose thrilling awe
 Held me in an hour like this ;
 Even as it had laid to sleep,
 Far in its recesses deep,
 All proud thoughts and selfish-hearted
 In the happier days departed :
 To all round me, lost and gone,
 Breathlessly I listened on.
 I would wander the world over,
 An untired, unresting rover ;
 I would meet all weariness,
 Pain, and peril, and distress,
 Lightly, gladly, I would brave,
 All that dwells in wind or wave ;
 Aught, each, all, I would sustain,
 Once to hear that voice again.

Calm I stood as stands the sail
 Waiting for the lagging gale ;
 Calm as is the heavy air
 Ere the lightning flasheth there :
 And I watch'd the wreathèd fire
 Towering higher, higher, higher ;
 And I look'd into his face
 Till I look'd on vacant space ;
 And I saw the last faint ray
 From his deep eye pass away :

And I felt, where he had stood
 Leaning by that burning wood,
 But the cool breeze o'er me playing,
 And the dim blue flame decaying.

Hurrying footsteps pass'd away,
 And I turn'd to go as they :
Whither ? I nor car'd nor knew,
 Life had nothing left for me ;
 Heaven, beneath its vault of blue,
 Held no place where hope might be.
 Time might measure endless space,
 And the vast world might roll on,
 I should see no human face
 My cold gaze could rest upon.

Would that in the deep mid sea,
 Passionate Sappho, like to thee,
 I might fling this fever'd breast,
 By the billows rock'd to rest !
 Or like her, the Italian child,
 From her buried home exiled ;
 And shut out, by the dark fate
 Laid upon her sealed eyes :
 A sad creature, isolate
 From sweet human sympathies,
 Drop into the lulling wave,
 And its blue depths be my grave !
 But thy fetter, Truth, is on me,
 And thy stern grasp is upon me ;
 And enough of thee I know
 Just to be held back to woe.

My heart is as an open grave,
 Its early-perish'd flowers entombing ;
 While o'er its edges darkly wave
 Pale rue and nightshade's deadly blooming ;
 And time, that wastes things mean and brave,
 Ruins and tomb is both consuming.
 May but, of all those odoriferous things,
 Some scent be borne unto the spirit that flings
 (In passing) o'er the spot the shadow of its wings.

PART III.

“Then *back to their own land.*”—*Lady Jane in the Tower.*

ENOUGH : my path is trodden, and the shore,
 The final shore of this dim weary world,
 Lies at my feet ; its tangled ways no more
 Detain my lingering footsteps. I have done :
 Father, take home thy child ! If yet thy sun,
 Which shineth on the evil and the good,
 On the loud throng and the still solitude,
 Of my appointed task see none remain,
 I would my spirit should return again
 To him who gave it, in his sight to rest ;
 And my fallen tent, its thin-worn canvass furl'd,
 Be laid away in dust.

This tranquil breast,
 Though in its pulses still the throb of life
 Beat leisurely, hath long forgot the strife,
 The aching turmoil, that doth ever hang
 On human hopes and dreamings ; and the clang
 Of jarring music, making discord fell,
 Rings through its depths no longer. If on earth
 I can no longer serve thee, let the knell,
 The solemn-breathing curfew, murmur peace
 To my strewn ashes, and the desolate hearth
 Of my decayèd halls know never more
 The haunting of my presence.

All is o'er,
 All past, all vanish'd, that might yet have won
 A half wish from me that life's evening sun
 Should set in their grey shadow. I have done,
 Done with the things of this world ; and this head,
 Bleach'd long before its time, and these dim eyes,
 Tired with looking on life's miseries,
 Come gladly to lie down among the dead.

But, oh ! Lord Bishop, for thy sake I speak,
 Whose blind displeasure may its vengeance wreak
 On this earth-framèd tenement, ordain'd

By fire or flood, or the more slow decay
 Of wasting malady, to melt away
 Into its kindred elements : the chained
 And o'erpressed spirit, that beneath its weight
 Hath long sigh'd heavily, will homeward take
 Its glad flight but the sooner. Lonely here,
 Save for His presence, who doth stoop to make
 Light the dark dwelling of the desolate,
 It matters not unto me by which gate
 Of exit from this dark and troublous sphere,
 Thou hastenest my escape : and for the sake
 Of some deep-graven, unfaded memories,
 And for that every added sacrifice
 Is lighting up a flame throughout the land,
 Soon to spread wider than the reckless hand
 Of tyranny can compass or allay ;
 I would choose rather the well-trodden way
 By which our prelates and confessors just
 Have pass'd into their rest, leaving their dust
 By heaven's winds to be scatter'd ; and their end
 (Link'd with the faith they perish'd to defend)
 A deathless legacy to other days,
 When our sweet England, fetterless and free
 As the glad breeze that sweeps along her sea,
 Shall see her children's hearths and altars blaze
 With the calm lights of peace, and bless the names
 Of those who, faithful to their country's trust,
 Their early vows made good amidst the flames.

Were but my words the winged shafts of truth,
 Lighting up to thy time-obscur'd gaze
 The real and the oncoming !

Yet a while,

And thy sad mistress, whose regard, in sooth,
 Is the bewildering star that doth beguile
 Thine eager steps to follow, shall be laid,
 Lonely and powerless, in the ancient shade
 Where sleep her crownèd fathers ; and the grace,
 The evanishing favour of her life's brief space,
 Law, grant, and statute, all that she hath done,
 (In despite of the good Lord Cardinal,

Who, sad for his torn country, grief o'er-run,
 The words of milder counsel doth let fall),
 All that within it hath not the clear stamp
 Of time-defying greatness, with the lamp
 Hung up by error and by truth down-hurl'd,
 Shall change and pass away. But in that world,
 The world of unveil'd truth, where thine and thou,
 And all that honour, all that follow thee,
 Shall *then* be dwelling, O ! will fate allow
 That the effacing wing of time and chance
 Sweep over the immutable ? the glance
 That looks along into eternity,
 By the angel torch of death illuminèd,
 Seeth it hope or promise to be read,
 Upon the awful front of destiny,
 Of alternation ? bringing to the soul,
 Lost in the vivid present, the controul
 Of action and occasion hurrying by,
 Forgetfulness of evil that doth lie
 Buried amid the records of the past,
 The page that, as it standeth, so shall last,
 Down in the hollow vaults of memory.

Remember, oh ! remember, thou and I
 Must hear another trumpet note sweep by,
 And stand together (not as now we are,
 But fellow suppliants) at another bar.
 I speak it not in anger, no ! oh, no !
 My fellow creature, who in this strange scene,
 Where error and illusion reign unseen,
 Must dwell a brief space longer, and perchance
 May'st live to follow the fair heritage,
 And love the truth I die for, on thy head
 A pilgrim's blessing fall ! Gladly I go
 To tread the last and the least weary stage,
 The closing valley* of my pilgrimage,
 And never shall our footsteps cross below.
 The God who hither hath my lone way led,
 Whose face illumineth the night's dark shore,
 Grant we may meet in his far Heaven once more !

On the horizon, heath-embrown'd,
 With nought visible around
 But a wide and lonely moor,
 Stood, half-hidden by grey moss,
 And the briars growing across,
 A low stone sculptured with a cross,
 And some graven words, which said :—

“ Upon this spot suffered
 The Lady Clemence Vabasour.
 Pilgrim passing by this way,
 Kneel upon the turf, and pray
 Thou into that Truth be led
 For which the Martyr's blood was shed.”

SPIRIT! sweet Spirit! who on Heaven's verge,
 This long time hovering, now, alas! dost seem,
 With white wings glistening in the golden beam
 Of light unrisen on this dark hemisphere,
 Too early ready thy far flight to urge
 Into the invisible; if yet the surge,
 Moaning around eternity's dim shore,
 Delay the launching bark prepared to steer
 Beyond's life's low horizon; if once more
 The gale beat back thy pinion, bent to soar
 To paradise emigrant; one who brings
 To thy lov'd ear these rude notes sadly blending,
 Will bless thee for one hour of the attending,
 Ah! *how* soon to be given to angel strings!

OBSERVATIONS ON THE ANIMALS INHABITING
MULTILOCULAR SHELLS,

CHIEFLY WITH A VIEW TO THE GEOLOGICAL IMPORTANCE OF THE SUBJECT.

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IN two former papers on this subject, I have endeavoured to give a somewhat popular account of cephalopodous animals and their shells, when the shells so far resemble those of the Nautilus and Ammonite as to be referrible to them as types: in other words, when the shell is divided into a limited number of compartments, the walls of separation being formed according to a constant law, and communicating by an aperture always retaining its relative position. It remains now to consider two cases departing from these types: one of them is the family of Belemnosepia, in which the concamerated structure appears to have been of somewhat inferior importance, and is found only in a small portion of the shell; the other is D'Orbigny's family of Foraminifera, and is characterized by the peculiar and varied forms of the chambers, which communicate only by small, irregularly-placed apertures, bearing no relation to, and not having the same use as, the regular opening for the siphuncle in the Ammonacea and Nautilacea.

Although the species of Belemnosepia are tolerably numerous, and the specimens very abundant, yet all of them belong to the same genus; and we may at once proceed to consider the nature of the shell and other parts found fossil, and then, as in the Siphonifera, trace from analogy the probable habits of the former possessor, and its connection with, and bearing upon, the other genera of Cephalopoda.

As it is usually met with, the Belemnite is of a more or less cylindrical form, but always coming to a point at one end, and sometimes swelling out at the other, and presenting a funnel-shaped aperture, in which is often contained a series of concavo-convex plates, greatly resembling in appearance a pile of watch glasses heaped upon each other, every one smaller than those below it, and rising into a cone. Such is the appearance of the fossil, we say, as it is usually found; but it is very necessary to consider how far

* Concluded from page 264 of the last number.

correction and explanation are required, to allow for the alteration produced by a long entombment in a more or less calcareous stratum. There are few instances, perhaps, where this kind of inquiry is more wanted, than the one before us. In the first place, the structure of the solid part is fibro-calcareous, and its weight considerable; but if this now stony mass be exposed to great heat, a strong smell is emitted, resembling that of burning horn, just as would happen if a frame-work of horny membrane—cellular as all organized matter is—had been petrified by the infiltration of carbonate of lime, which, we know, would fill up the empty space, and, providing the structure were originally fibrous and radiating from an axis, would present precisely the appearance which the fossil Belemnite does present. It is so highly improbable, and contrary to all analogy, that the hard parts of a highly organized animal should consist of a thick, heavy, stony cylinder, of considerably greater specific gravity than the fluid in which it lived, and so clear from actual observation that horny matter did enter into the composition of this curious organ, that there can be little doubt of its having been, when forming part of an animal, a light horny skeleton, and converted afterwards, and by a slow process, into its present petrified condition.

But, secondly, the contents of the aperture are by no means to be taken as the real substance which once was included in the body of the animal. The series of plates we have alluded to merely serves to give us an idea of the shape of the once empty chambers, whose septa, or walls of separation, filled the space between them. This conical interior (called the alveolus) is, in fact, all that remains of the chambered portion of the shell, and resembles an *Orthoceratite* in its general appearance. It is not unlike that fossil in structure and use, as well as in external configuration.

Again: we have said above that the Belemnite sometimes bulges out towards the larger extremity; but this description gives a very faint idea of the nature of the aperture and parts connected with it, from which, indeed, the most interesting and instructive facts are learnt. Commencing at the base of the hollow cone of the sheath—as the fibro-calcareous part is called—there is now known to have extended a horny cup, in which great part of the viscera, &c. of the animal, were included; and besides these a quantity of black fluid, capable of being spirted out, at a moment of danger, to darken the water, and give time to the animal to escape from its enemies.

We can now understand the more correct and complete definition of a Belemnite, namely, that it was made up of three parts—a skele-

ton, whereto the muscles were attached ; a pouch, in which the animal was contained ; and a concamerated shell, to act, probably, like that of the Nautilus, and give the possessor a great facility in altering its depth in the water, and so of more readily obtaining food and avoiding danger.

It was mentioned just now that one of the parts of the animal contained in the horny pouch of this fossil, was known to be a contrivance for secreting and emitting a black fluid, to darken the water about it. Now it may fairly enough be asked what proof we have of this ; for it must seem a strange thing to one unaccustomed to these investigations, that we thus speak positively upon a matter which does not, at first sight, seem capable of very clear elucidation. Few things, however, can be more clear or certain ; and the reason of this will soon appear.

It is conjectured that at certain periods during the formation of the beds of chalky clay called *lias*, there occurred submarine eruptions, suddenly destroying the lives of vast numbers of animals, and burying all together in one heap of mud. At all events, we occasionally find various remains of saurians, fish, and other genera of lower organisation, so perfectly preserved as to make it evident that some very sudden cause of death must have existed to allow of their being deposited in that state.* What this cause may have been we will not speculate on at present ; but the effects remain, and not the least remarkable amongst them must be considered the existence, at the present day, of the fragile and destructible ink-pen of a sepia, and the very dried fluid itself, capable of being worked up still into a good and perfect pigment. We will speak of this horny ink-bag and ink a little more in detail ; and since it is very nearly the same in the fossil as in the recent state, we might from either describe the contrivances, which had clearly the same object in both.

There is a singular resemblance between the structure of the ink-pen in the sepia, and the wing-feather of a bird ; and to this resemblance, it is clear, the name is owing. We find in both a broad central shaft, with long narrow filaments transversely placed, and extending on each side of the shaft ; but the similarity, of course, ceases when we come to internal structure, and is not, indeed, entire in the general appearance.

* I may remark here that it is by no means the case that such sudden destruction will account for the formation of any considerable portions of this or any formation. Generally speaking, there is abundant evidence of the *slow* deposition of fossiliferous beds ; and the exceptions are rare and very local.

The filaments in the ink-pen of the cephalopod terminate on each side in a straight line, which makes an acute angle with the outer edge of a marginal band, separating the filaments from the body of the shaft. The shaft itself is divided lengthways into two parts, and is formed of thin horn-like plates laid on each other, and composed of alternate longitudinal and transverse fibres. The whole contrivance is connected with a bag containing the ink (which is of the consistence of pap, and suspended in the cells of a thin net-work, filling up the interior of the bag); and at the least alarm it is spirted out, and discolours the surrounding fluid. The rich brown colour called sepia, and the still darker one known as Indian ink, are manufactured from cephalopodous animals now living in the Indian seas; and, as we have already observed, the dried carbonaceous matter in the pouches of similar animals found fossil might be, and indeed has been, worked up into a pigment, and is then not distinguishable from the best of that which is commonly to be obtained.

Having described this contrivance in known animals, we come next to consider whether there is proof that in the genus before us—that of *Belemnites*—a similar contrivance existed; and, if so, how far the now extinct animal may have resembled the yet living *sepia* and other *Cephalopoda*.

Till lately, no absolute proof had completely silenced the doubt as to whether the fossil pouches and ink-pens had once belonged to the shell called *Belemnite*; for the horny termination of the calcareous sheath had not been found connected with the fossil. The matter, however, is now entirely set at rest by the discovery, first, of the horny sheath forming a continuation of the calcareous part to a distance equal to the length of that solid portion; and secondly, and most conclusively, by two complete specimens, noticed first by Prof. Agassiz, each containing an ink-bag within this anterior horny portion. More recently, the ink-bag has often been obtained in connection with the horny sheath, and the horny continuation has been found in many individuals of well-known species of *Belemnite*; so that the fact of the co-existence of all these parts in the same animal is no longer to be doubted. It may be observed, lastly, that casts of the chambers are very commonly found in the open end of the fossil; and we have, therefore, now gone through, and connected, the chief points in the natural history of the animal, so far as it is indicated by organic remains still existing.

It will be seen, from this description, that the natural family of *Belemno-sepia*, thus brought under our notice, appears to form a link uniting the peculiarities of the common *sepia*, and other free-

swimming Cephalopoda, with those of the Nautilus, and still more the Ammonite and other extinct genera. It is, indeed, an extraordinary thing to find apparent breaks in the great chain of Nature thus supplied from a former, but, in many respects, analogous state of existence: but such discoveries can never lose their interest by becoming too common. It is a source of pure delight, no less to the comparative anatomist than to the more humble student of Nature's works, thus to trace order and a system where such things appear least to exist; and when, as in the case before us, the materials have gradually accumulated, and the truth at last comes clearly out from among a mass of error, we cannot but be peculiarly interested: and the result is well worthy of general attention.

As we have now pointed out the analogies with other genera, as well as the peculiarities in the genus before us, we may give the following as a probable description of the animal of the Belemnite. It resembled, doubtless, in shape, the conical—or rather *nine-pin*—contour of some kinds of Cuttle-fish yet living; but as it was provided with a strong internal shell, seems to have been, on the whole, better defended than they are. Besides the shell, it had a siphuncle, often sufficiently large, running through the air chambers, which, as they were defended by the external shell, neither required nor possessed any contrivance for increasing their power of resistance. The action of this siphuncle would tend to give the possessor great facility in ascending or descending in the water; and thus the animal might be able to obtain food at various, though perhaps not at extreme, depths. The provision of ink, too, the bag for its secretion, and the contrivance for its excretion, clearly point out a means of escape from enemies; and we know that these cephalopodous animals, although their suckers and long arms are admirably adapted to grasp and convey to the mouth the prey upon which they subsist, would nevertheless be left, so far as weapons of offence are concerned, utterly helpless against the voracious fish and saurians which then abounded in the ocean, and were doubtless their natural enemies. Their means of escape must, however, have been tolerably efficacious, as they could at once shelter themselves in self-created darkness until the concamerated structure and the siphuncle had been brought into action, and the animal had sunk and was lost to its pursuers. The modern species—the sepia, octopus, &c.—not provided with the additional contrivance of the siphuncle, have not, apparently, so many enemies to guard against; and it seems probable that the Nautilus, Ammonite, &c. having external shells, are, and were, by them sufficiently protected.

Having now concluded our remarks on the *Belemno-sepia*, we come, in the last place, to the family named by M. D'Orbigny the "Foraminifera," so called, as we have already mentioned, from the unconnected holes or foramina in the septa, through which no tube passes, and whose existence, so far as we know at present, is of small importance in the structure of the shell.

Unfortunately for the general understanding of this part of the subject, the species, both recent and fossil, which are included among the Foraminifera, are, for the most part, so small, and their structure requires commonly such very minute and careful examination before it can be at all understood, that few have turned their attention to so unpromising a branch of natural history; and there is even great difficulty in communicating the little knowledge we have in a convenient and popular form, especially without the assistance of figures. It is certainly somewhat remarkable that out of fifty-two genera, comprising altogether many hundred species, which are found in such vast abundance, both in a recent and fossil state, that, on the one hand, we have whole mountains made up of them, while, on the other, they almost render the ocean, in many latitudes, alive with their countless myriads; notwithstanding all this, it is probable that a very small proportion of my readers will be aware of having seen a single specimen, or feel confident in identifying one genus, even after they have read the description about to be given. Perhaps, however, one reason for so curious a fact will, in a great measure, clear up the mystery; for it must be admitted that where the dimensions of any species of this great family are sufficiently large to bear examination by the unassisted eye, the form is so very unpretending, and bears so little resemblance to any thing organic, that more than a superficial glance is required to distinguish the specimen from a shapeless stone; while, in the great majority of species, the shell is so extremely minute that it might pass muster for a grain of sand or a particle of dust.

Still, to the naturalist, there is something attractive even in this minuteness and obscurity. We love to be exclusive in our devotions: and who is there, eager in the pursuit of science, who has not some little exclusive favourite—some little idol of an opinion or experiment—which he fondly fancies is confined to himself and his own little circle? It is fortunate that such is the case; for to this feeling, perhaps, we owe much of minute and laborious research, little rewarded by the multitude, but carrying its own recompense with it, and requiring nothing more.

But to proceed. In order to give as definite an account as possi-

ble of this very curious branch of conchology, and that there may be something tangible—some real foundation of knowledge, upon which the superstructure of opinion and theory may ultimately rest, it will be of advantage to describe in some detail a single genus of Foraminifera. There is one peculiarly fitted for our purpose, since, while it is marked by the distinctive characters of the family, it bears, at the same time, some analogy to known forms. It is of a size and appearance which readily admits of examination ; and is so common that only neglect and carelessness have hitherto prevented it from being noticed more universally. The name of this genus is “ Nummulite ;” and it is derived from the appearance of the shell, which closely resembles that of an old and much-worn coin. It is circular, discoid, and thicker in the middle than at the outer edge. There is no appearance of organisation externally, for the edge appears the same round the whole circumference ; but when one of the faces is ground down to the mesial plane—that is, when the shell is reduced to half its thickness—the internal structure becomes visible, and is seen to consist of a vast, but indefinite, number of small chambers, having the walls which separate them oblique to the aperture, and each septum perforated with a small hole, irregularly placed, and not connected by any siphuncle. These successive chambers are wound into a spiral, and the resemblance to the Ammonite is sufficiently near to give some notion of the form and structure ; while the facts—first, that there is no chamber beyond the last septum or partition ; and secondly, that no connecting tube can have passed through the irregular small aperture in the septa—are quite sufficient to show that the shell we have described differs in very essential points from any that have hitherto come under our notice.

A very considerable proportion of the species of Foraminifera determined by M. D’Orbigny, are now living in the Mediterranean or other seas of warm latitudes, and most of these have been examined by that indefatigable naturalist or his sons. As the general result of his investigations, it may be mentioned that the animals have, for the most part, a purse-shaped body, in the posterior part of which the shell is found ; that the body is very large, compared with the head and tentaculæ, which, indeed, at a moment of danger, may be entirely drawn within the extensible folds of the skin of the anterior part. The tentaculæ are very numerous, and are ranged round the aperture of the mouth, which is, as usual in Cephalopoda, in the centre of the head.

The connection between the animal and its shell, or skeleton,

seems to be extremely slight, for they separate at the slightest touch at the moment when decomposition begins to take place after death ; and then the chambers of the shell are found filled with a coloured liquid, the intensity of the colour being greatest in the last chamber. The smallest change in the usual habits of the animal is sufficient to destroy life ; and, owing to the extreme rapidity with which decomposition goes on, it is very difficult to observe the structure accurately. Of European seas, the Adriatic seems to be the favourite resort of these animals ; they are found chiefly near the coast, and in shallow water, feeding on the various polyps which abound in such localities.

One very interesting point—but it is, at the same time, one very difficult to investigate—is the mode by which the shells increase, whether by gradual and daily growth, or by the sudden and periodical addition of a complete chamber. On the whole, it seems probable that the latter is the case, and that even when the last chamber is larger than all the rest, it is still added by a sudden and rapid effort, although doubtless a great displacement of certain parts of the animal is thereby produced.

Since, however, the peculiar way in which the new chamber is added, determines the shape of the shell, we have thus the groundwork of a system of classification which, after great labour and long observation, M. D'Orbigny declares to be the most convenient and the best, being dependent on the natural relations which connect the genera, and govern their distribution into separate groups. Of these groups he has named five, as comprising all the fifty-two genera with which he was acquainted ; and we now proceed to give some account of them, digressing occasionally to remark upon any particular genus, interesting from its occurrence in a fossil state.

The first group comprises eight genera, in which the shells are formed by the simple superposition of one chamber upon another, all having the same axis : just as if one were to place a series of hollow cones, of equal bases but different altitudes, one upon another, the highest being the outermost. This structure, indeed, if the lower part of the cone is supposed rounded off so that the whole may be pear-shaped, and we leave small apertures at each apex, then resembles very much the genus "*Nodosaria*" of Lamarck, and will serve to give a tolerably correct idea of the peculiarities of this first group, to which it is referred. The shells of all the genera thus connected are vitreous, and more or less brittle ; and of the species known rather more than half have been met with fossil in various

tertiary formations. The recent species are chiefly from the Adriatic, although a few of them are natives of the British coast.

The shells of D'Orbigny's second group are not so simple in their construction as those we have just described. The chambers do not form a regular spire, although that is the apparent shape; but they are placed alternately right and left, piled upon each other on two or three distinct axes; sometimes the septum of the right hand chambers overlapping more or less those of the other side, and sometimes merely touching. The apparent spire often resembles that of the common univalve shells, *Cerithium*, *Turritella*, &c.; but occasionally it is more rounded, the apex being obtuse and more like the shell called "Pupa." There are seven genera referred to this group, and between sixty and seventy species: the shell is always porous in its structure, and the exterior rough and irregular. More than half the species occur fossil, but most of these belong to one genus, the *Polymorphina* of D'Orbigny, characterised by the simple alternation of the chambers and the roundness of the aperture. Twenty out of the twenty-eight species of this genus are found fossil in the Paris Basin. Besides this, one other genus has nearly half its species fossil, and one is confined to a single fossil species.

The third group contains those shells of which the component cells are arranged on one, or at most two, distinct axes, but which form a decided spiral by their mode of increase, the spiral being in some cases elevated, and in others flattened. This group has been sub-divided into three sections, which we will consider separately, as each contains some of the most remarkable and abundant fossil species, a very large proportion of which—as many as one hundred and thirty-three—are referred to this important sub-division of the Foraminifera.

The first section comprises ten genera and sixty-two fossil species, all of which have the chambers arranged on a single axis, and forming a spire more or less elevated. Some of these have very singular shapes, which are perfectly indescribable without the aid of accurate models, or at least engravings. The most interesting to the geologist of the genera of this section is that called *Rotalites*—the "Rotalia" of Lamarck and D'Orbigny—which contains thirty-two fossil species, chiefly met with in the tertiary beds of Bourdeaux. The shell is trochiform and regular; the spire sometimes prominent, sometimes flattened; and the aperture is a longitudinal slit opposite the penultimate whorl, usually unprovided with marginal appendices, the occurrence of which, however, in some species, has been

considered sufficient ground to separate and form them into a sub-genus.

In the second section, where the shell is discoïdal, but the whorls of the spire visible, the most interesting genus is that which has been called "Lenticulites"—the "Operculina" of D'Orbigny. It is common among the fossils in the neighbourhood of Bordeaux, Dax, &c., and bears externally considerable resemblance to an Ammonite.

The third section differs from the second very much as the *Nautilus* differs in appearance from the Ammonite: the whorls of the spire successively embrace all but the last, and so none but the last is visible. The fossil species of *Spirolinites*, *Cristellaria* and *Nummulites*, all belonging to this division of the group, have long been looked upon as the most important among the fossil Foraminifera. They are in number about thirty; but the individuals of these thirty species are so widely distributed and so singularly abundant, especially in the case of the Nummulite, that whole mountains are made up of them, and in some countries their remains form no inconsiderable portion of the solid masses of limestone used for building. It may be quoted, as an instance of this, that some of the great pyramids of Egypt are built of "Nummulite" limestone—in other words, are chiefly made up of little lenticular shells, few of which are so large as a half-crown piece, while by far the greater number vary in size from that of a small pin's head to about three quarters of an inch in diameter.

The *Spirolinite* is a genus at present only known from fossil species, which bear some resemblance to the siphoniferous species, *Spirula* and *Lituite*, the spire projecting, at a certain age, in a straight line, and then forming a cylindrical tube. In this, as in many other genera, the septum of the young individual is provided with several apertures, although afterwards the number diminishes; and when the animal has attained a certain age there is only one to be observed.

The *Cristellaria* occur both fossil and in a recent state. In external configuration, the shells of this genus may be compared to the *Argonauta*, since the point of the depressed spire is eccentric; but, like all the other Foraminifera, they are divided into a multitude of little cells opening into each other, though without any siphuncle passing through them. The fossil species are chiefly from the Coroncine (Italy), although several are found in the limestone at Caen.

Of the Nummulite we have already spoken. Its remains abound

chiefly in the upper secondary strata of the Alps, Carpathians, and Pyrenees, and in the tertiary limestones of Verona and Monte Bolca. They are there numerous as the sands upon the sea-shore: and even if we imagine that their former possessors swarmed in the ancient seas, and cleared away the redundancy of animal life by the free indulgence of their carnivorous propensities, still it requires no slight effort of the mind to look back through the long vista of departed ages, and consider the amount of time which must necessarily have been required for the gradual accretion of mountains of small shells, each of them once performing a part, doubtless very important, in an animal of high organization, created for a wise purpose, living its appointed time, and then dying, but leaving as a bequest to futurity its little skeleton, to form afterwards, when united with many others of its kind, a prominent and useful portion of the crust of the earth. No such honour awaits the remains of the elephant, the rhinoceros, or the whale, gigantic as are their forms; nor can even man expect that his remains, and the work of his hands, will thus mingle with nature's works, and assist in forming the future surface of the globe. It is only the smallest and most unpretending, the apparently most insignificant of animals, which, admitting of vastness in number rather than in size, and multiplying with a rapidity utterly baffling to all our powers of comprehension, thus produce gigantic effects from causes, to all appearance, inadequate, and leave monuments that endure from generation to generation, till the gradual wearing of atmospheric agents, or the more rapid alteration effected by subterraneous fire, shall cause the particles once aggregated by the living principle to enter into new chemical combinations, and so alter and destroy the organic structure.

Thus does the geologist look back into those chapters of the history of the globe written only in the hieroglyphic of nature, and telling of conditions long since changed; and then forward to other and future periods, when the "time and chance" that happen to all shall have worked new effects from old causes, and given more evidence (if more were wanted) of the wisdom, the greatness, and the power, of that Being who framed the laws which govern matter, and the creatures created of it.

If it excites our surprise, as it well may, that the organic remains of the Nummulite form a sensible proportion of the actual mass of which the earth is composed, although an individual specimen rarely possesses a diameter of more than half an inch, what shall we say on learning that there is another genus (*Miliola*), referred to D'Orbigny's fourth group of the Foraminifera, which, although it ne-

ver attains the size of an ordinary pin's head, still, by its indefinite multiplication, forms a considerable portion of the mass of the extensive tertiary formations in the neighbourhood of Paris. Nor is this almost incredible abundance of exceedingly small organised bodies at all so rare as might be expected; and there is good reason to believe that, as science advances, and accurate observation is directed to the various calcareous sands which are so often met with in the older formations, we shall find more and more reason to wonder at the profusion of nature at all periods, in giving life to numerous minute species of animals, whose real importance in the great general system is a matter yet to be clearly explained.

This genus—the “*Miliola*” of Férussac, so called from a fancied resemblance to millet-seed—embraces the six genera which compose D'Orbigny's fourth group, and, as we have just mentioned, is extremely abundant among the fossils of the Paris Basin. In it the chambers are clustered in various modes upon a common axis, each chamber being of the whole length of the shell, which is thus gradually enlarged, very much as we may conceive the successive coats of a bulb, such as the onion, to increase the whole in length as well as thickness; only it must be remembered that the size of the last chamber is not quite sufficient to surround the former ones, and the result in this, as in most of the Foraminifera, is an odd anomalous appearance, very difficult to describe, and which can only be understood by studying the models of the principle microscopic genera, invented by M. D'Orbigny. As many as forty-one species of this interesting group are found fossil, more than half of them in the neighbourhood of Paris. The whole number of species known, including the recent ones, amount to about a hundred.

The fifth and last of the great sub-division of the Foraminifera, according to M. D'Orbigny's classification, is marked by the separation of the chambers into numerous cavities, by partitions or small tubes. There are five genera and but nineteen species referred to this group: nine of the species occur fossil, but no very particular interest attaches to any of them, although one genus, the—“*Fabularia*”—possesses a very remarkable structure, the chambers being divided into a great number of tubes, and having many apertures placed alternately at either extremity,

Such is a faint sketch of a branch of natural history, perhaps the most curious, as it is undoubtedly the most obscure and difficult, of any that has hitherto attracted the attention of scientific men. Our outline is, as might have been anticipated, crude, dry, and incomplete: it is, for the most part, a mere statement of names and num-

bers, and possesses perhaps hardly sufficient interest to reward the curious reader for the labour of perusal. Would that it were otherwise ! Would that any exertions of ours were sufficient to put forward in its course this most unattractive, although most useful, work.

It was mentioned, at the commencement of our remarks on these Foraminifera, that the species were, for the most part, extremely small. No means of judging of the size was, however, given ; and to those who have not before studied the subject at all, it will, doubtless, excite astonishment when they learn that this minuteness is sometimes that of a grain of sand, sometimes a mere point, in which no organic structure can be at all recognised by the unassisted eye, but never in any instance, except that of the Nummulite, offers a surface for examination so large as a grain of Indian corn. Commonly the size is about that of the small [o] in the type before the reader ; and it is more frequently less than greater. The difficulty of managing such very minute objects, and determining accurately their structure, both external and internal, will be appreciated only by persons accustomed to delicate microscopic investigations. To others it must be sufficient to put the facts before them, and leave them to wonder at the patience and quiet industry of the one or two who have devoted long years to the improvement of science in this department.

It must not be concealed that—after all the laborious investigation of M. D'Orbigny, and the conclusions to which he arrived after a very long series of actual observations by the sea-side—some naturalists have denied that the animals of all of these shells are really cephalopodous. Many of them, so small as to be found clustering round the minute branches of sea-weeds, are there fixed, either by the voluntary act of the animal, or by the adhesion of the shell itself ; not, indeed, that the shell actually touches the body to which it is affixed, for it is always, as we have said, internal : but in this latter case the skin-like covering, or sac, which contains the animal, is the only substance that intervenes. In these genera, the organization must, undoubtedly, differ very widely from the type of the Cephalopoda, whose structure is far more complicated than is met with in animals deprived of all power of locomotion : and unless accurate and minute anatomical research absolutely demands their being retained in this class, they certainly can hardly be considered as belonging to it. With regard to the use of the shell in the Foraminifera, all that can be said at present is, that it acts most probably as a float ; and in this way may be peculiarly useful to cephalopodous animals, from its

position in the lower part of the thimble-shaped body, which is thus naturally, and without muscular effort, kept uppermost in the water, although, unless there were some contrivance of the kind, it would probably be the heaviest part, as containing the closely-packed viscera. If the reader has not forgotten what was said of this class of animals at the commencement of our essay, he will perceive how perfectly convenient to them such an apparently unnatural posture—the head being the lowest part—must be, for all the purposes of feeding and other functions of life.

We have now gone through the different groups which compose the two great divisions of cephalopodous animals provided with multilocular shells. We have considered first the probable nature and habits of the Ammoneata, as deduced from the somewhat analogous family of Nautilacea; then, blending our knowledge of Nautilus and the naked sepia, we have applied the result to inquire concerning the animal to which the Belemnite formerly belonged; and now we have been considering the nature of the more minute, and occasionally more obscure, owners of foraminiferous shells. The habits of these last, indeed, are not very satisfactorily determined; but there is little doubt that they, for the most part, swim freely in the ocean, although the fact of some problematical genera having been observed permanently attached to marine substances, seems to form a curious and anomalous exception. It has been our object all along to give a simple, unexaggerated statement of the present condition of knowledge on the subject discussed, occasionally throwing out our own ideas, indeed, to serve as hints, but in this only performing the imperative duty of every one, at all interested in the progress of science. We assume no higher office than the unpretending one of indicator: standing, we trust, on the high-road of scientific research, we point the way to a path as yet but little trodden; but it is a path not without its flowers which those who search diligently will find abundantly. If these flowers are small, they are not the less sweet; and the wreath that is woven of the humble violet administers, perhaps, fully as much to the happiness of the wearer as that in which the laurel tells of loftier conquests and more rapid advancement. It should never, however, be forgotten, that really important progress in any branch of science is made up of the simultaneous advance of a large number of separate departments; and although this is not always seen—for the rapidity of the forward movement, when it does take place, dazzles the eye and confuses the understanding—yet it is not the less true that every thing of real interest and utility is attained only by cool, calm, minute research,

directed, not to the most promising, but often to the darkest and most obscure, points.

Let not the bearing of this observation upon the subject before us be lost sight of. Geology is, and has been for some years, making progress with a rapidity and certainty marvellous, and almost incredible; but this has been because its votaries have not disdained to search in the quarry and the mountain side, in the deep mine and the water-course, for the true interpretation of nature. The naturalist, the anatomist, the chemist, the mineralogist, all have lent their energies to the prosecution of the great work: and they have succeeded gloriously. But it is not difficult to foresee that if they slacken their efforts—if they leave the examination of nature, and resort to theory before the chain of evidence is complete—at that moment their steps will become retrograde, and their advance change into a retreat. How important, then, is it that every step should be sure, every fact, as far as possible, decisive! But since it is clear, to every one at all acquainted with the subject, that the remains of organised matter enter largely into the conditions of every geological problem, therefore their study becomes highly important, and deeply interesting.

Now, in all the successive marine deposits, some species of one great natural family are invariably met with. This family is the Cephalopoda; and it is of all others the most widely distributed, the most numerous, and, what is almost of more consequence than either, the most persistent in generic character. Forming as it does the connecting link between the vertebrated and invertebrated animals, the distinction even of species is, as might have been anticipated, more decidedly marked than in any other testacea: and every thing seems to point attention to this, as the one class of all others the most important to every student as well as teacher of geology.

If, indeed, zoology is to be brought to bear upon our science, so as to multiply facts and increase the value of evidence—if, in considering the older and more widely spread formations, the study of organic remains is to go hand in hand with mineralogical and lithological characters—if we are to judge of contemporaneity of rocks by the identity and parallelism of species—then, in all these cases, does it behove us to study well the whole natural history of the Cephalopoda, for in them chiefly, if not entirely, must we expect to find the important connecting links, and by their assistance solve the great questions at issue.

AN HISTORICAL SKETCH OF FRENCH LITERATURE.

IV.—ON THE TENSONS, AND THE COURTS OF LOVE.

“ Where throngs of knights and barons bold,
In weeds of peace, high triumphs hold,
With store of ladies, whose bright eyes
Rain influence, and judge the prize
Of wit or arms, while both contend
To win her grace, whom all commend.”—*L'Allegro.*

HAVING now traced the rise and progress of Provençal literature, with all its chivalrous accompaniments of love and gallantry, and having likewise stated the apparent causes to which we may attribute its decline and ultimate decay, it remains for us to notice, at greater length, the various forms of composition which distinguish the poetry itself.

Of the literary reliques of the Troubadours, the most numerous, if not the most instructive and interesting, are decidedly the *Tensons*.* In these compositions, two or more rival poets,

* These compositions will be read with a two-fold interest, when we remember that the recitation of one of them liberated from his foreign prison our own Richard “of the Lyone’s Hearte.” We have already (page 106) regretted the loss of this interesting production; it may, however, not be uninteresting here to notice the *tenson* which has been generally ascribed to Richard, and has been treated as such by Bishop Percy and Dr. Burney, and printed in their works. The source, however, from which they have derived it, is of an entirely fabulous nature, being a series of songs entitled, “*La Tour Tenebreuse et les Jours lumineux, Contes Angloises, &c. composées par Richard, surnommé Cœur de Lion,*” &c. Paris, 1705. The whole work is, however, a mere fabrication; and the *tenson* of Richard has been unnoticed both by Sismondi and Walpole. As it may not, however, be altogether uninteresting to some readers, we give the song in the Provençal, with the translation by Dr. Burney.

BLONDEL.

Domna vostra beutas
Elas bellas faissos
Els bel oils amoros
Els gens cors ben taillats
Don sieu empresenats
De vostra amor que mi lia.

BLONDEL.

Your beauty, lady fair,
None views without delight;
But still so cold an air
No passion can excite:
Yet this I patient see
While all are shunned like me.

in alternate couplets of contest and altercation, exhibited their powers before a brilliant audience, and contended for the mastery of verse. The subjects chosen for these poetical debates were, as may be imagined, generally of a chivalrous or amatory nature; and not unfrequently in these, as in graver consultations, each party, after exhibiting all possible ingenuity and zeal in the defence of his own, and the refutation of his opponent's views, remained of the same opinion at the conclusion as at the commencement of the argument. The decisions were, however, generally referred to particular arbitrators, or otherwise to the Courts of Love, which we shall presently notice. It is not a little remarkable that, with the exception of those recorded by the Courts of Love, we possess the decision of only one arbitrator. This solitary relique is to be found in a *tenson* between Giraud Riquier and Guillaume de Mur, in which the former proposes the following question as the subject of debate. "Of two wealthy barons, which is the more estimable, he who expends his wealth for the benefit of his friends and companions, to the exclusion of strangers, or he who spends his all among strangers, forgetful of his own kindred and friends?" After some argument an arbitrator is chosen, who thus pronounces his decision: "Guillaume and Giraut have requested my decision in a contest which both have carried on with wit and genius. Guillaume has ably contended for the baron who gives his wealth to strangers, and Giraut has defended the one who expends it on his friends, to the exclusion of foreigners. I, therefore, wishing to speak the truth, now decide, and say that though it be estimable to do good to all men, yet the greater praise is due to him who first benefits his own friends."*

RICHARD.

Si bel trop affansia
 Ja de vos non partrai
 Que major honorai
 Sol en votre deman
 Que sautra des beisan
 Tot can de vos volria.

RICHARD.

No nymph my heart can wound
 If favour she divide,
 And smiles on all around,
 Unwilling to decide:
 I'd rather hatred bear
 Than love with others share.

See Percy, *Reliques of English Poetry*, p. 29-31; Burney, *History of Music*, vol. ii, p. 236-8; Favine, *Theatre of Honour and Knighthood*, tom. ii, p. 49 Fauchet, *Recueil de la Lanque Françoise*, p. 93.

* A modern French translation of this Provençal version of the old saying, "charity begins at home," will be found in Millot, *Hist. Litt. des Troub.* tom. iii, p. 109. The original Provençal, which we have here given, is printed also in Raynouard, *Choix des Poesies des Troubadours*, tom. ii, p. 107; and in Diez, *Poesie der Troub.* p. 191.

The defence, however, of some disputed argument, was not the only object of the *tenson*; on the contrary, we find that satire, love, revenge, and friendship, are all, in turn, discussed. Sometimes it consisted merely of a series of invectives between the rival poets; and sometimes, assuming a more pleasing aspect, it breathed only of love, and as the medium of exchanging vows of fidelity and devotion between two lovers, must be considered as a love-song in the form of a dialogue. In some cases the number of debaters exceeded two, in which case it was called a *Torneyamen*. A specimen of this species of composition is given by Raynouard,* in which three gallant knights maintain a warm dispute as to the comparative favour of a look or a touch from their mistress. It was customary for the poet who undertook to answer any of the questions which might be proposed as the subjects of debate, to frame his reply in a stanza similar in measure to his antagonist's proposition, and very frequently having the same rhymes. It is from this circumstance that it has been supposed that these productions were each, like the *Eclogues* of Virgil, the entire work of one poet. There is, however, abundant proof that the *tensons* were, what they purport to be, the extemporaneous effusions of rival poets, as, in addition to other historical proofs, they bear evident marks of the jealousy and undisguised animosity of their authors.† There are, it is true, some few remaining specimens

“ Guillems m'a dat et Guiraut pensamen
De lur tenso jutgar, don m'an somos ;
En razos es l'us a l'autre ginhos
D'est dos baros, que donan engalmen ;

Guillems mante sel c'als estranhs valer
Vol, non als sieus, don sa razos et fortz,
E Guiraut sel c'als sieus fa be tot l'an
Et als estranhs non ten per pauc ni gran.

E nos avem volgut cosselh aver
E dir lo dreg, e dizem que conortz
Es de pretz dar e bos faitz on que an ;
Ma pus fin pretz a selh qu'al sieus l'espan.”

* Raynouard, *Choix des Poesies des Troub.* tom. ii, p. 199; Sismondi, *Litt. of the South of Europe*, tom. ii, p. 106.

† See Sismondi, vol. i, p. 137, who, as a specimen of the animosity of the poets, cites a *tenson* between Rambaut de Vaqueiras and the Marquis Albert Malespina, two of the most powerful and valiant captains of the age, in which they mutually accuse each other of *highway robbery* and *perjury*. There is also abundant proof, from the compositions of the Troubadours themselves, that the *tensons* were the productions of more than one author; what can be more decisive than the following, in which one poet cries to another, “Ha!

which are undoubtedly the work of one poet; in these cases, however, the dialogue was carried on with some incorporeal or inanimate object, as the Deity, love, or a mantle.

From the almost endless variety of questions debated in the *tensons*, which meet us everywhere in the works of Raynouard, Diez, and Millot, we have selected a few, which will give us a tolerably accurate idea of the favourite subjects of discussion:—

“A noble knight loves a lady, who returns his love; he has, however, long neglected to visit her, and knows that if he repeats his visits she will renounce his love. Ought he, therefore, in this case, to see her again?”*

“One lover is so jealous that the merest trifles alarm him: another is so blinded by his passion that he perceives not that his beloved prefers another. Which of the two is the truer lover?”

“Which are the greater, the pleasures or the pains of love?”

“Ought a lady to do as much for her lover as he for her?”

These questions, empty and trifling as they are, were frequently debated at great length, and several of the arguments display considerable ingenuity, though it must be confessed that the greater part are insufferably dull and insipid, though perhaps useful, as presenting us with a faithful portrait of the licentiousness and degradation of the age. Before, however, we so hastily condemn these compositions, we should duly remember the manner, the place, and the time in which they were recited. We must first bear in mind the fact that one of the distinguishing marks of the poetry of the Troubadours consisted in the abundant and varied use of rhyme:† this

Falconet, well met: I am glad that you are here again, for 'tis long since we have had a *tenson* together.”

“En Falconet, b'em platz, car es vengutz
Que loncx temps a no fi ab vos tenso.”

Raynouard, *Choix des Poesies*, &c. tom. v, p. 147; Diez, *Poesie der Troub.* p. 188–90.

* The question is proposed by Hugues, and Bertrand, his antagonist, answers that “the knight should immediately visit the lady;” to which, however, Hugues replies, “You appear to be entirely ignorant of the tender passion; for, in love, the more affable you are the less you gain.”

“On plus vos fai de be, meins hi guazanha.”

Histoire Littéraire de France (par les Moines de S. Maur), tom. xix, p. 600; Raynouard, *Choix des Poesies des Troub.* tom. iv, p. 217.

† Want of space alone prevents the examination of the various hypotheses on this interesting subject: suffice it to say that Sismondi, Ginguéné, and

was, in fact, the very ground-work of their versification, the peculiar feature which distinguished it from that of the classical ages. The great variety of stanzas in which they indulged must also be remembered. So great, indeed, was the license permitted in this respect, that Rambaut de Vaqueiras, surnamed "*le Bel Cavalier*," has left a poem in six stanzas, each of which is in a different dialect; * the first being in Romance, the second in Tuscan, the third in French, the fourth in Gascon, the fifth in Spanish, and the sixth in a most curious *mélange* of all these idioms. It must also be considered that these poems were framed with the strictest regard to harmony, that they were composed for music, and were expressly adapted to the melodious tones of the harp. It was by this powerful and heart-stirring combination of two of the most powerful of the imitative arts, † of poetical enthusiasm and of musical expression,

Andres, attribute it to an Arabian origin, while Muratori, Tyrwhitt, and the ingenious Hallam, deduce it from the Latin rhythmical verses, which, in the decline of that language, became current among those who were unable to appreciate the true force of syllabic quantity. Is it not possible, however, that rhyme, like chivalry, may have had its origin with the "*barbarous Goths*?" may it not have arisen 'mid the fogs of Iceland and the mists of Scandinavia? We think it may; and doubt not that 'ere long it will be satisfactorily proved that the "*lords of the lion heart and eagle eye*," the authors of the *Edda* and the *Nibelungen*, the tribes who first raised the female character to the proud pre-eminence which it now enjoys, were the originators and inventors of that chief beauty of modern poetry—rhyme.

* Compositions of this description, when each stanza was composed separately, and without any stated return of rhyme or equality of metre, were termed *Descorts*, an expression signifying discordance. This style appears to have been adopted by the Troubadours to denote the contending feelings which filled their breasts when their mistress proved unfaithful or unkind: as is the case in the instances which we have cited of Rambaut de Vaqueiras (the same "*bel cavalier*" who the Marquis Malespina charged with highway robbery), who afterwards mentions the infidelity of his mistress, and states that as sufficient reason for the discordance of his poetry, The *acort* was precisely the opposite, and was meant to signify the delights arising from a favoured passion. Thus, Guiraut de Salignac informs us that as long as his mistress proves faithful he will never compose a *descort*, but will occupy himself with *acorts*.

" E ja no feira descort
S'ieu acort
Ebon accordansa
Trobés ab lieys, qu'am plus fort."

Raynouard, *Choir des Poesies*, &c. tom. iii, p. 396; Diez, *Poesie der Troub.* p. 116.

† On the powerful effects of the union of music and poetry, the reader is referred to the philological works of G. J. Vossius, and more especially to his

that the Troubadours (first fruits of European literature) so rapidly acquired that proud pre-eminence, and that universal admiration, which, like the chords of their own harps, have long since mouldered in the dust, and are hidden 'neath the wreck of ages. Can it, then, for a moment, be imagined that these poems, composed upon the spur of the moment, when inflamed by love or excited by an animated rivalry, will bear to be laid before the searching eye of criticism, and, under all the disadvantages of a halting prose translation, to be perused solely for the purpose of discovering the sentiments and ideas which they contain? As well might we attempt to render interesting in a prose translation the odes of Anacreon, the songs of Alcmanes, or the lyrics of Alcæus. Lyric poetry may be compared to a temple, fair, light, tasteful, yet withal fantastic in its style, the foundations of which are harmony and enthusiasm; divest it of these, its only supports, and the heavy, shapeless mass of ruins which bestrew the ground will, to pursue the metaphor, still bear a strong similarity to the dulness and insipidity of the poetry when, divested of its choicest beauties, it is reduced to the level of languid prose. In order fully to appreciate the compositions of the Troubadours, we must transport ourselves to the age of chivalry; we must conjure up a vision of the days that are past; we must imagine knights, esquires, and pages, collected for the celebration of a solemn tournament,* and, surrounded by imposing pomp and brilliant page-

Institutiones Poeticæ. The treatise by his son Isaac, *De Poematum Cantu et Viribus Rhythmici*, contains a fund of valuable information on the subject, mingled, however, with those wild and imaginative notions which distinguished the author. In perusing the works of the younger Vossius, we must never forget his love for the marvellous, and his prejudices in favour of antiquity. The treatise *De Poematum*, &c. is written solely with the views of extolling the music of the ancients, and depreciating that of modern nations, except the Chinese, for whom he has a most strange predilection. See also Jortin's *Philological Tracts*, vol. ii, p. 1.

* These military diversions have already been so frequently and so ably discussed, that another detailed account of them might, perhaps, be deemed superfluous and tedious. We cannot, however, let the subject pass without adverting to the difference which existed between the *jousts* and the *tournaments*—chivalric institutions, which, though essentially different, are still very frequently confounded. The former were the direct offspring of the judicial combats, recorded by Tacitus as existing among the northern tribes; in which the accused was permitted to meet his accuser face to face, and in single conflict to maintain his innocence, relying, perhaps, less on the strength of his individual arm, than on those deep-rooted feelings of superstition which led him to believe that "God defends the brave" (*Deos fortioribus adesse*). The *joust* was, in fact, the precursor of the modern duel (a mode of trial

antry, view the knights superbly mounted and caparisoned, each one adorned with the *favours** of her to gain whose approving smile he dared every danger, plunge recklessly into the animated conflict. The mimic warfare over, we must transport ourselves to the great hall of the castle, and there—surrounded by all that is lovely, or gallant, or noble, or brave; by all that is calculated to heat the imagination or to inflame the heart—imagine a knight, perhaps already crowned with the laurels of victory, stepping forth, and in a melodious voice, accompanied by his well-tuned harp, proposing a subject for discussion; his rival then advancing, and in a stanza of similar metre answering the question. The verbal contest over, and the decision granted, we may easily imagine the victorious poet receiving from the hands of the fair dispensers of renown, the longed-for wreath of victory. In the tender and vo-

possessing all the barbarism of the northern ordeal, without its religious feelings); the arms used were of an offensive nature; and the combatants seldom separated until one or other had received a mortal wound. The *tournement*, on the contrary, was intended merely as a military amusement; in which bodies of knights exercised themselves in mimic warfare, and contended for the approbation of the fair. The arms used, also, were of an inoffensive nature, being generally restricted to headless spears and blunted swords and daggers. In spite, however, of all these precautions, innumerable accidents occurred. Ducange, in his admirable dissertation on the subject, names upwards of twenty nobles of the highest rank who died in them. The evil at length grew to such an extent that the popes thundered forth their anathemas against those who practised them, averred that those who died in them would unavoidably be damned, and even denied them christian burial: "*Et si quis eorum ibi mortuus fuerit, quamvis ei poenitentia non denegetur, Ecclesiasticâ tamen careat sepulturâ.*"—(Concil. Lateran. A. D. 1179). The exciting influences of these conflicts were too great to be thus easily dispensed with, and the tournaments were continued with unabated vigour until the year 1559 when Henry II, King of France, received his death-blow in one. From this period they gradually fell into disuse; and their decline was not a little hastened by the invention of gunpowder, which altogether changed the mode of warfare. For detailed accounts of this subject see Ducange, *Glossarium*, voce "*Torneamentum*;" Ducange, *Dissertations VI et VII à l'Histoire de S. Louis*; Strutt's *Sports and Pastimes*, p. 88; Scott's *Essay on Romance*; and last, though, in point of antiquarian research, not least, his admirable description of the tournament in *Ivanhoe*.

* If the knight happened to lose this valued trifle, his mistress quickly gave him another; and so eagerly did the ladies furnish their favoured lovers with new pledges of their affection, that at the conclusion of the conflict they frequently found themselves nearly destitute of decent covering. From this expression, *faveur*, is derived the bride's *favours*.—See S. Palaye, *Mem. sur l'Ancienne Cheval.* tom. i, p. 95.

luptuous strains of the Troubadours, there is a vehemence and an ardour peculiarly their own, which may well defy all attempts at imitation or translation. They are the natural and glowing expressions of the early genius of an imaginative people : too nervous, too simple, and too striking, ever to be duly appreciated by after ages, and too exclusively adapted to music to be criticised from the cold and spiritless relics which, having survived the lapse of ages, are now to be found only in the collections of the curious.

When peace or a truce brought with it a brief repose, the public lists, the crowded tournament, and the applauding fair, all conspired to keep the mind in the same undeviating direction to its favourite object, chivalry. Beneath the azure sky of Provence it was, as we have before seen, that this institution first presented that brilliant pageantry and those varied forms, which, glimmering through the mists of ages, still charm the imagination of the poet and command the attention of the historian. The same congenial soil gave birth, also, to one of the most singular of chivalric institutions, the Courts of Love. The Troubadours, in the discussion of the numerous abstruse questions in which they so much delighted, might naturally be supposed to desire to lay their contentions before some tribunal, to whose final decree both parties might unhesitatingly yield. To supply this want were founded the Courts of Love, in which the fair sex presided, and gravely debated the merits of the arguments which had been pleaded by the contending poets. The fair rulers of these courts did not, however, restrict themselves to the discussion of such abstruse and problematical questions, but, under the pretence of a regard for social improvement, took cognizance of every thing relating to love. Before these tribunals husbands complained of the infidelity of their wives, lovers appealed against the harshness of their mistresses, and ladies depicted the neglect of their lovers, requesting that they might formally be permitted to renounce their devotion ; everything, in short, relating to the tender passion, was discussed with a scholastic and punctilious subtilty that could hardly have been surpassed by the sophistry which distinguished the scholars of the age. These tribunals, which were generally convoked and presided over by some lady distinguished by rank or beauty, consisted of an unlimited number of married ladies, the number varying from ten to forty : the Countess of Champagne, however, presided over one of sixty ladies. In addition, however, to these lady judges, it appears that knights also were admitted, each of whom had his peculiar duty ; and from the great number and quality of these officers it would appear that they were founded

upon the model of the sovereign courts.* The decrees of these courts were guided by a certain code of love,† which was stated to have been found by a Breton knight, while wandering through a thick forest, suspended by a golden chain from a tree. This amatory code, a copy of which was possessed by every tribunal, consisted of thirty-one articles, which inculcated, as may be imagined, a very easy system of morality, or, to speak more correctly, of refined libertinism. In the decisions (or, as they were termed, *arrêts*) of these singular monuments of love, the unblushing familiarity with which the fair ones expressed their amours, and the art with which they discussed the tender passion, is truly surprising; and though

* The only complete list which we have remaining of the offices of the Court of Love, will be found in the *Hist. de l'Acad. des Inscriptions et Belles Lettres*; 500 persons are there named, with the separate office which each occupied. This list has been printed from a manuscript of the end of the 16th century, which was transcribed from the original of, at least, fifty years earlier date. From the names of the numerous historical personages recorded, it has been stated that this court was one held in 1410, by Charles VI. and his Queen Isabella, of Bavaria.—See *Hist. de l'Acad. des Inscriptions etc.* tom. vii, p. 287; Diez, *Beitrag Zur Kenntniss der Römischen Poesie*, p. 93.

† This code has been recorded by Andrés, a chaplain of the Court of France, who has likewise left us a voluminous record of the *arrêts* of the Courts of Love. His work, however, though regarded by Raynouard as a veracious authority, consists of a series of fabulous legends, the foundation of which, however, is truth. Some of these *veracious* records are too palpably absurd to need refutation. Thus, he tells us that “a knight who violated his plighted faith, was whipped with rods at Aix;” and that “burial was denied to a lady who had broken some of the laws of love.” These facts, it is true, have startled Raynouard, who, however, gravely satisfies himself by affirming that these tribunals were fully empowered to execute these decrees, if necessary, by force, otherwise by the laws of honour, which lead a man to risk his life in a duel or to pay his debts of honour. Honour, forsooth, must have been in those days something more than a “mere escutcheon,” if it could thus lead a gallant knight to allow himself to be publicly whipped, or the relations of a lady to permit her to remain disinterred. The absurdity is palpable, as has been amply proved in a small work by the learned Diez, entitled *Beitrag zur Kenntniss der Römischen Poesie*. Berlin, 1825. This writer, perhaps, carries his objections to too great a length, in denying altogether the *existence* of these tribunals; though, in regard to their penal authority, he is undoubtedly correct. M. de Chasteuil, a learned though credulous Frenchman, published in 1701 a work, in which he treats of these courts as possessed of unlimited authority and power. His work was, however, ably refuted by M. de Haitze in 1702, who at some length exposed the visionary theories of Chasteuil. An accurate *précis* of this literary controversy will be found in De Sade, *Mémoires pour la Vie de Petrarque*, tom. ii, p. 44, note.

they sometimes hid a warmer sentiment beneath the more decorous name of friendship, or shrouded it beneath the cloak of Platonic love or disinterested affection, such was the simplicity of manners that, even in the presence of their husbands, they unblushingly dared to give unequivocal marks of the friendship and admiration in which they held their *cavalieri serventi*. This unbridled licentiousness, combined with the foppery which characterized these institutions, tended, perhaps, to hasten their suppression, as we find little mention made of them after the commencement of the fourteenth century. Evil, however, as was the system of these tribunals, the tençons which were discussed in them are, perhaps, more valuable than any of the other reliques of the Provençals, as presenting us with a more lively and more natural picture of the manners of the times; they give us, in fact, the only complete view of the institution of chivalry; and in the licentious, yet ingenious, and indecent, yet sincere, expressions which characterize these compositions, we have a faithful picture of that institution, composed as it was of veneration and of grossness, of simplicity and of gorgeousness, of magnanimity and of selfishness; in short, of feelings the most opposite, and of affections the most remote.

In the consideration of the Courts of Love, we must be careful not to confound them with the *Jeux Floréaux*, which were of a totally different nature. These latter sprang up at Toulouse in the decline of Provençal literature, and were one of the numerous efforts then made for its revival. These games were instituted in 1323, under the auspices of seven gentlemen of Toulouse, who, poets themselves, were accustomed to meet for the recitation of their compositions at a retired spot near the city. Wishing to increase their numbers, and at the same time to give publicity to their scheme, they sent round the country circular letters, signed by *La gaie Société des Sept Troubadors*, offering a reward of a golden violet to the author of the poem which should be deemed the best, at the next assembly in May, 1323. This first meeting was numerously attended, and the prize was adjudged to Arnould Vidal, who was immediately created a doctor of the "*gaie science*." These assemblies were continued annually, and were numerously attended; they, however, received greater publicity through the generosity of a poetess, Clemence d'Isaure, who left in her will three other golden flowers, which were added to the original violet. Until the reign of Louis XIV, it had been merely a private institution for the encouragement of poetry; in 1646, however, that monarch took it under his especial patronage, added a golden amaranth to the prizes already offered, and limited

the number of members to thirty-six. The institution is still in existence, its annual festivals being celebrated in May. Its morality, also, has been reformed; and no composition which treats of an unlawful passion is permitted to be recited.*

CRITES.

* Velly, Villaret et Garnier, *Histoire de France*, tom. viii, p. 139, &c.; see also Caseneuve, *Origine des Jeux Floréaux*. This latter author, who maintains that these institutions had their rise in Provence, adds, by way of satire on the Germans, to whom he had a great dislike, that "*les Allemands, qui ont toujours été les singes des gentillesse Françaises, en introduircirent chez eux la façon et la coutume.*"—p. 46, &c.

(To be continued).

SKETCHES OF EUROPEAN ORNITHOLOGY.

GOULD'S "BIRDS OF EUROPE."

NINETEENTH PART.

PLATE I. The White Wagtail,—*Motacilla alba*,—Bergeronette grise, *Fr.*,—Cutrettola cinerea, *It.*,—Weisse Bachstelze, *G.*,—Zwijkstraart, *D.* The true *M. alba*, of Linnæus; common in France and the European continent, Africa, and the high lands of India; but unknown in Britain: and principally differing from the British species in the absence of the deep-black colouring on the back, by which the latter is characterized. *Food*: Flies, and other Insects and their larvæ; Millipedes. *Nest*: formed in rocks, bridge-arches, towers, hollow trees. *Eggs*: 6, bluish-white, spotted with black. *Female*: white colour less pure,—black occipital mark less extensive, than in *male*.

PLATE II. Shoveller Duck,—*Rhynchopsis*—olim *Anas*—*clypeata*,—(*A. rubens*, Gmel.),—Canard Souchet, ou le Rouge, *Fr.*,—*Anatra mestolone*, *It.*,—Loffelente, *G.* The type of a new genus, instituted, by Leach, on the peculiar configuration of the beak (*ῥύχος*, the beak, *ἀσπίς*, a shield); and thus characterized: *Beak* long, with base

unarmed, semi-cylindric, lip dilated, spoon-shaped, with small incurved nail. Sides of mandibles with pectinated lamellæ. *Nostrils* medial, oval, basal. *Tail* short, simple, commonly 14-feathered. *Spathulea*, of Fleming. *Food*, of this, the only British species, Insect-larvæ, fresh-water plants. *Nidification*, like that of Common Wild Duck. *Eggs*: 10—12; pale-green. Figures of male and female admirably executed.*

PLATE III. Reed-Wren,—*Salicaria arundinacea*, (*Sylvia*, *Motacilla*, and *Curruca arund.*, respectively, of Latham, Gmelin, and Brisson),—le Bec-fin des Roseaux, ou Efarvatte, *Fr.*,—der Rohrsänger, *G.*,—het Karrakietje, *D.* A British species, migratory; arriving in April: nearly allied to *S. phragmitis*; but distinguishable by larger size, and uniform tint of upper surface. *Food*: aquatic flies and larvæ. *Nest*: upright, † flower-pot-shaped; formed of seed-tops of reeds and long grass, and attached to stems of the former. *Eggs*: 4—5, greenish-white, speckled and blotched with brown and dull-green. *Fig.* Male and Female.

PLATE IV. Natterer's Warbler,—*Sylvia Nattereri*,—Bec-fin Natterer, *Fr.* A new and rare species, discovered, by Natterer of Vienna, in South of Spain, and since met with in South of France, Switzerland, and the Tyrol. *Food*: small Arachnida and Insects. *Nest*: among grass; spherical: formed externally of dead leaves, with lateral orifice. *Eggs*: 4—5, globular, white, dotted with pale-red. *Fig.* One male.

PLATE V. The Sanderling,—*Arenaria Calidris*, olim *Calid.*,—*Tringa arenaria*,—le Sanderling variable, *Fr.*,—der gemeine Strandläufer, graue Sonderling, *G.*,—Grijze Zandplevier, *D.* An autumnal migrant from the Arctic regions; arriving about August or September. *Food*: Coleoptera, and marine insects. *Nidification* unknown. *Fig.* two birds in summer- and winter- plumage.

PLATE VI. Tree-Pipit,—*Anthus arboreus*,—le Pipit des Buissons, *Fr.*,—der Baumpieper, *G.* A British species, nearly resembling *A. pratensis*; but distinguishable by its *short* and *curved hind-claw*, and migratory habits. Arrives in early spring. *Food*: insects

* Having exhausted all our scanty stock of laudatory epithets in the analysis of the preceding parts of Mr. Gould's work, we shall, henceforth, observe an economical silence in our descriptions, except when we have some glaring defect to notice, or some important error to expose.—P.

† The nest and egg of this species are beautifully and correctly figured by Schinz, in his admirable *Beschreibung und Abbildung der künstlichen Nester und Eyer der Vögel*: 4to. Zurich, 1830.

and their larvæ. *Nest*: constructed amid long herbage or low bushes, of moss, fibrous roots, and withered grasses. *Eggs*: 4—5, greyish-white, speckled with brownish-purple. Sexes alike. *Fig.* one adult male.

PLATE VII. Ruddy Shieldrake,—*Tadorna rutila* (*Anas Casarka*, Linn.),—le Canard Kasarka, *Fr.*,—die gelbrothe Ente, *G.* A rare European and still rarer British species, provisionally placed under *Tadorna*; but destined, we sagely predict, ere long, to constitute, with *Anas tadornoides*, a new genus, *Casarka*? One specimen only yet killed in Britain. *Food*: grasses, aquatic Insects and larvæ, Breeds on borders of large rivers. *Eggs*: 8—10, white. Female distinguished from male by absence of black collar; less brilliant colouring of plumage; and grey speckling of back. *Fig.* adult male.

PLATE VIII. Brake Locustelle (Grasshopper Lark and Warbler, of olden time),—*Locustella avicula*,—le Bec-fin locustelle, *Fr.*,—Heuschreckensanger, *G.* A common British species, especially in the south. *Food*: small Mollusca, Insects. *Nest*: concealed among brambles or furze; formed of moss and dried stems of *Galium*. *Eggs*: 4—5, pinkish-grey, with numerous specks of deeper tint. *Fig.* male and female: dark spots on throat of *former*, most conspicuously marked.

PLATE IX. Cinereous Shearwater,—*Puffinus cinereus*,—le Petrel Puffin, *Fr.*,—der Wasserscherer, *G.* A species lately transferred from *Procellaria*; widely diffused over Europe; but rare in Britain. *P. fuliginosus*, of Strickland, probably only a young bird of present subject. *Food*, and *habits*: those of *P. Anglorum*. *Nidification* unknown. *Fig.* two adult birds.

PLATE X. Purple Sandpiper,—*Tringa maritima*,—le Becasseau violet, *Fr.*,—Migratory. Winter-visitant in Britain, October—April. Distinguished from congeners by rich-violet tint of plumage, deeper in summer. *Food*: small testaceous Mollusca, Crustacea, marine plants. *Nidification* unknown. *Fig.* an adult male.

PLATE XI. Sky-Lark,—*Alauda arvensis*,—l'Alouette des champs, *Fr.*,—Allodola, *It.*,—die gemeine oder Feld-Lerche, *G.*,—de gemeene Lecurik, *D.* *Food*: grain, Insects. *Nest*: on the ground. *Eggs*: 4—5, greyish, spotted with brown. *Fig.* an adult male, and young bird.

PLATE XII. Common Cuckoo,—*Cuculus canorus*,—le Coucou gris, *Fr.*,—Cucule cenerino, *It.*,—Asch-grauer oder gemeiner Kukuk, *G.*,—de Koekoek, *D.* A bird too well known to require description. The adult bird quits Britain on its migration southward,

in August; the young, in September. In genial springs, we have been accustomed to hear the welcome voice of the male about April 18th. *Fig.* an adult, and young bird.

PLATE XIII. Nightingale,—*Philomela luscinia*,—le Rossignol, *Fr.*,—il Russignuolo, *It.*,—die Nachtgegal, *G.*,—Nachtgegael, *D.*—See Mr. Blyth's Papers, in Nos. 15, and 16, of *The Analyst*. *Fig.* one male, rather too highly coloured.

PLATE XIV. Great Egret,—*Ardea alba*,—le Héron Aigrette, ou blanc, *Fr.*,—la Garza bianca, *It.*,—der weisse Silberreiher, *G.*,—de witte Reiger, *D.* A beautiful specimen, common in southern and eastern, rare in central and north Europe. The long, hair-like feathers, which spring from the back, and are susceptible of erection and depression at will, appear in Spring, and are lost in Autumn. *Food*, and *habits*, like those of *A. cinerea*. *Nest*: arboreal. *Eggs*: 4—6, bluish-white. *Fig.* an adult male. Temminck has confounded this bird with *A. Egretta*, a distinct American species.

PLATE XV. Common Creeper,—*Certhia familiaris*,—le Grimpeur, *Fr.*,—il Picchio passerino, *It.*,—der gemeine Baumläufer, *G.*,—gemeen of europisch Boomkruipertje, *D.* The only European species of the genus; permanently resident in Britain. An expert tree-climber: cry, resembling that of *Regulus auricapillus*. Insectivorous. *Nest*: of grass and mosses, in holes of trees. *Eggs*: 7—9, white, speckled with reddish-brown. *Fig.* an adult.

PLATE XVI.—Bewick's Swan,—*Cygnus Bewickii*,—le Cygne de Bewick, *Fr.* This newly-discovered species of wild swan differs from the Hooper in its smaller size, and the colouring of the beak, which is black at point, and orange-yellow at base, in *male* bird, and lemon-yellow in *female*. For the distinguishing characters of internal structure, we must refer to Yarrell's paper in *Linnæan Transactions*. *Food*: like that of congener. *Nest*: of moss-peat; 6 feet long, $4\frac{3}{4}$ wide, 2 deep, and $1\frac{1}{2}$ in diameter of cavity. *Eggs*: brownish-white, clouded with a darker tint. *Fig.* an adult male.

PLATE XVII. Wood-Lark,—*Alauda arborea*,—l'Alouette lulu, *Fr.*,—la Lodola degli alberi, *It.*,—die Baum- oder Waldlerche, *G.*,—Boomleerik, *D.* Migratory to and from Britain, April—October. *Food*: Insects, oily seeds. *Nest*: terrestrial; beneath herbageous tuft or shrub. *Eggs*: 4—5, grey, spotted with brown. *Fig.* an adult male.

PLATE XVIII. Scaup Pochard,—*Fuligula*—olim *Anas*—*marila*,—le Canard milouinan, *Fr.*,—die Berg-Ente, *G.*,—Berg-eend, Topper of Velt Duiker, *D.* Native residence, and scene of *nidification*,

the Arctic regions. Migrates to Europe, on approach of winter. *Food*: fishes, Mollusca, and marine plants, obtained by diving. *Female*, differing so much, in plumage, from *male*, and moreover marked with a broad white band at base of bill, as to have been described as a distinct species, *A. frænata*. *Fig.* an adult male, and female.

PLATE XIX. Crested Lark,—*Alauda cristata*,—l'Alouette à haussecol noir, *Fr.* (*A. cochevis*, of Temminck),—la Capellugola, *It.*,—die Haubenlerche, *G.*,—Gekuifde Leurik, *D.* Common in South-Europe: rarely occurring northward. *Female* distinguished, from *male*, by smaller size, and shorter crest. *Food*, and *nest*: resembling those of *A. arvensis*. *Eggs*: 4—5, pale ashy-brown, with dark-brown spots. *Fig.* adult male, and female.

PLATE XX. Garden-Warbler,—*Curruca hortensis*,—le Bec-fin fauvette, *Fr.*,—Beccafico cenerino, *It.*,—graue Grasmücke, *G.*,—Braemsluiper, *D.* Migratory: arriving in Britain, during April. Little inferior to Nightingale and Blackcap, in song. *Nest*: amid nettles and rank herbage, formed of roots, grasses, and moss. *Eggs*: 4—5, yellowish-grey, blotched with wood-brown.

TWENTIETH PART.

PLATE I. Red-collared Goatsucker,—*Caprimulgus ruficollis*,—l'Engoulevent à collier roux, *Fr.* A new species of *Caprimulgus*; killed, by Natterer, in south of Spain, where it is termed *Samala*. Imperial Cabinet of Vienna alone possesses specimens. Africa is supposed to constitute its native habitation. *Fig.* an adult male.

PLATE II. Black-winged Kite,—*Elanus melanopterus*,—l'Elanion blanc, *Fr.* A beautiful species; widely diffused over all the warm and temperate portions of the old continent. *Food*: birds, reptiles, amphibia, and insects captured on the wing. *Nidification*: apparently unknown. *Fig.* an adult, and young bird.

PLATE III. Bonelli's Eagle,—*Aquila Bonelli*,—l'Aigle Bonelli, *Fr.* A noble species; first described by Temminck, as an occasional visitant of Europe. *Fig.* an adult male, superbly coloured.

PLATE IV. Siberian Thrush,—*Turdus Sibericus*,—le Merle à sourcils blancs, *Fr.* A rare species, first described by Pallas; and supposed to connect the members of *Petrocincla* with those of *Turdus* genus. *Male* distinguished from *female*, of both of which *figures* are given, by broad white streak above the eye. *Nidification*: not mentioned.

PLATE V. Olive-tree Salicaria,—*S. olivetorum*. A new species; discovered by Strickland, three years ago, in Zante, one of the Ionian islands. It belongs to that division of the *Salicariæ*, in which the tail is but slightly rounded, and the colouring sombre and uniform. Probably destined to form, with other nearly-allied species, a new genus. *Nidification*: not mentioned. One *figure*.

PLATE VI. Iceland Gull,—*Larus islandicus* vel *glaucoïdes*,—la Mouette d'Icelande, *Fr.* A beautiful species; occurring more frequently than supposed, on the shores of Britain. Not described in the first two volumes of Temminck. *Food*: fishes, whale-flesh, and carrion. *Fig.* an adult male.

PLATE VII. White-winged Wagtail,—*Motacilla lugubris*,—why not *leucoptera*?—la Bergeronnette lugubre, *Fr.* A species common in the Crimea, Hungary, Italy, and south of France; and clearly distinguishable from the British *Pied*, and continental *White* congeners, by its superiority of size, *white wing*, and black mark extending between bill and eye. Resembles, in *food*, and *habits*, the other members of the Family. *Fig.* two, in summer- and winter- plumage.

PLATE VIII. Purple Heron,—*Ardea purpurea*,—l'Héron pourpre, *Fr.*,—Scarza granocchia, *It.*,—der Purperreiher, *G.*,—Purpere Reiger, *D.* Diffused over the whole of Europe, Asia, and Africa; and especially abundant in Holland, and the low marshy districts of France. Merely an accidental visitant of the British shores. *Food*: mice, fishes, frogs, insects. *Nest*: formed on the ground among herbage. *Eggs*: 3, pale bluish-green. *Fig.* adult male.

PLATE IX. Pallas' Water-Ouzel,—*Cinclus Pallasii*,—la Cincle de Pallas, *Fr.* An occasional visitant of the eastern confines of Europe; noticed, by Temminck, in Part III, of *Manuel d'Ornithologie*, and closely resembling our *C. aquaticus*. *Habits*, and *nidification*, unknown. *Fig.* an adult, and young bird.

PLATE X. Marsh Warbler,—*Salicaria*—*Sylvia*—*palustris*,—le Bec-fin verderolle, *Fr.*,—der Sumpfsanger, *G.* Nearly allied, in figure and habits, to *S. arundinacea*; but distinguishable by larger bill, yellow lining of mouth, and greener tint of plumage. Gifted, also, with great variety of song and powers of imitation. Common in central Europe, Germany, Holland. *Food*: Insects, berries. *Nest*: spherical; formed, on ground, among roots of willows, reeds, and bushes. *Eggs*: 4—5, clear-ash, spotted with bluish-ash. *Fig.* one adult.

PLATE XI. Lead-coloured Falcon,—*Falco concolor*,—le Faucon concolore, *Fr.* Native of North-Africa, and occasional visitant of

Europe; resembling, in general economy, our Hobby. *Habits* unknown. *Fig.* an adult male?

PLATE XII. American Bittern,—*Botaurus lentiginosus* (*Ardea lentiginosa*, Montagu),—le Butor de l'Amérique, *Fr.* A native of America; occasionally visiting Britain, and closely resembling our *B. stellaris*. Described, and figured, in *Supplement to Montagu's Ornithological Dictionary*. *Food*: Amphibia, fishes. *Nest*: among the tall grass of swamps. *Eggs*: 4, cinereous-green. *Fig.* one adult bird.

PLATE XIII. Toupet Tit,—*Parus bicolor*,—le Mésange bicolore, *Fr.* Native of America; but occasional visitant of Russia. Resembling, in manners, the more strictly European members of the Family. *Nest*: formed of warm materials, in holes prepared by different Woodpeckers, or made by the bird itself. *Eggs*: 6—8, pure-white, sparingly spotted with red at larger end. *Fig.* an adult.

PLATE XIV. Rufous-backed Egret,—*Ardea russata*,—l'Héron roussâtre, *Fr.* A native of southern and eastern Europe; occasionally captured in Britain. Described by Montagu, in *Linneæan Transactions*, vol. ix, and in *Ornithological Dictionary*, as little White Heron. *Food*: frogs, fishes, insects. *Nidification*: unknown. *Fig.* an adult, distinguished from young bird by the fine rufous tint of the plumage.

PLATE XV. Red-chested Dottrel,—*Charadrius pyrrhоторax*. *Fig.* of an adult and young bird; transmitted, by Temminck, as an European species, without information respecting its habits.

PLATE XVI. Slender-billed Curlew,—*Numenius tenuirostris*.—A native of South-Europe; discovered by Prof. Savi: and distinguishable from Common Curlew and Whimbrel, by size of bill, and distinct spotting of breast. *Habits* unknown.

PLATE XVII. Rufous Swallow,—*Hirundo rufula*,—l'Hirondelle rousseline, *Fr.* Native of south and west Africa, and occasional wanderer from its northern shores to South-Europe. Familiar with man; frequently building in sleeping-room of his habitation. *Insectivorous*. *Nest*: a hollow ball, with elongated tubular entrance. *Eggs*: 4—6, white, with small brown spots. *Fig.* adult male.

PLATE XVIII. Numidian Demoiselle,—*Anthropoides virgo*,—la Grue demoiselle, *Fr.* An occasional migrant from Africa, its native habitation, to Europe. Dispersed, also, over India. *Food*: lizards, small fishes, snails, aquatic insects. *Nidification*: unknown. *Fig.* an adult male.

PLATE XIX. Short-toed Ptarmigan,—*Lagopus*—olim *Tetrao*—

brachydactylus,—le Tétrás à doigts courts, *Fr.* A new and well-defined species; obtained from north Europe: distinguished from *L. saliceti*, in having nostrils and bill almost concealed by feathers; tarsi shorter, and thickly feathered; and shafts of primaries, and toenails, pure-white. *Habits* unknown. *Fig.* an adult in winter-plumage, white, with exception of bill and tail-feathers, which are black; and bare skin above the eye,—scarlet. Summer-plumage described as rich chestnut-brown.

PLATE XX. Winter-Finch,—*Fringilla hyemalis*,—le Bruant Jacobin, *Fr.* A summer-migrant to the Arctic regions: common in Greenland and Iceland. Tame, gentle, and resembling, in habits, the common Sparrow. *Granivorous*. *Nidification* unknown. *Fig.* an adult male, and female.

TWENTY-FIRST PART.

PLATE I. White's Thrush,—*Turdus Whitei*,—le Merle de White, *Fr.* A new species of European thrush; one specimen of which has been killed in Britain: provisionally placed under *Turdus*; but probably destined to constitute, with *Turdus varius*, of Horsfield, and another from New South Wales, a well-marked and distinct group among the *Merulidæ*. From these species, it differs, principally, in greater length of wing. *Fig.* one adult bird.

PLATE II. Black Grouse,—*Tetrao tetrix*,—le Tétrás birkhan, *Fr.*,—Gallo di monte, Fasiano negro, *It.*,—Gabelschwanziges Waldhuhn, das Birkhuhn, Kleiner Auerhahn, *G.*,—Kor- of Berkhoen, *D.* A well-known European and British bird. *Food*: Insects, seeds, and grain, the buds and shoots of different trees, especially the Fir-tribe. *Nest*: of a few dried stems of grass, formed, commonly on marsby ground, beneath the shelter of tall tuft or low bush. *Eggs*: 6—10, yellowish-grey, blotched with reddish-brown. *Fig.* adult Male, and Female.

PLATE III. Migratory Ouzel,—*Merula migratoria*,—le Merle erratique, *Fr.* This beautiful thrush, the *Robin* of America, occasionally migrates from that Continent to Europe; and has been killed in Germany, and near Vienna. It belongs to the Section of the *Merulidæ* which includes our common Blackbird; and closely resembles that species in its habits, *Nidification*, and song. Animated descriptions of it occur in the works of Wilson, Audubon, and Richardson. *Fig.* an adult bird.

PLATE IV. Mountain Accentor,—*A. montanellus*,—l'Accenteur

montagnard, *Fr.* Of this bird, Mr. Gould, after visiting almost all the continental Collections, has met with but one specimen, killed in Austria, 1790. He had previously regarded it as a mere variety of *A. modularis*; from which, however, it is readily distinguished by a conspicuous stripe of buff over the eye, and the general tawny hue of the under-surface. *Nidification* unknown. *Fig.* one Adult.

PLATE V. Egyptian Goose,—*Chenalopex Egyptiaca* (probably *χηνολώπιξ*, of the ancient Greeks),—l'Oie d'Egypte, *Fr.* An African member of the Goose-Family; occasionally visiting South Europe, particularly the island of Sicily; and now domesticated in Britain. Sexes alike in plumage; but *female* smaller, and less distinctly coloured, than *male*; of which an adult is *figured*.

PLATE VI. Pallid Thrush,—*Turdus pallidus*,—le Merle blafard, *Fr.* Native of Asia; widely diffused over Siberia, and occasionally visiting central regions of Europe. First described by Pallas. Probably resembling in *food*, habits, and *nidification*, other members of the Family. *Fig.* Two adults in different states of plumage.

PLATE VII. Asiatic Nuthatch,—*Sitta Asiatica*. A specimen, from Temminck's Cabinet; taken in Russia. Smaller, and lighter in general ground of colouring, than *S. europæa*. *Nidification*, and habits, unknown. *Fig.* an adult.

PLATE VIII. Rock Ptarmigan. A specimen from Lord Derby's Collection; supposed, by some, identical with American, *L. rupestris*; by others, to be merely the female of *L. mutus* in her orange-coloured spring- and summer- plumage. One *figure*.

PLATE IX. Northern Puffin,—*Mormon glacialis*,—le Macareux glacial, *Fr.* A native of the Arctic circle; occasionally visiting north Europe. Distinguished from its congener, *M. fratercula*, by larger, more powerful, and uniformly orange-coloured bill, and greater length of fleshy appendages above the eyes. *Nidification*: unknown. *Fig.* an adult male.

PLATE X. Common Partridge,—*Perdix cinerea* (olim *Tetrao perdix*),—le Perdrix grise, *Fr.*—Pernice, *It.*—Gemeines oder graues Feld, Reb- Waldhuhn, *G.*—Patrys, *D.* *Fig.* adult male and female: too large; rather clumsily drawn, and not very softly coloured.

PLATE XI. Silky Warbler,—*Salicaria*—*Sylvia*—*sericea*,—le Bec-fin soyeux, *Fr.* A new species; discovered, by Natterer, in South Europe: nearly allied to *S. Cetti*; and probably constituting, with it, a minor division among "les Riverains," of Temminck. These species differ from true *Salicaria*, in total absence of stiff hairs at base of

bill; more rounded form of head and wing; and thicker and more silky plumage. Habits, and *nidification*, of our present subject, unknown. *Fig.* an adult male.

PLATE XII. Common Pheasant,—*Phasianus Colchicus*,—le Faisan vulgaire, *Fr.*,—Fagiano commune, *It.*,—der gemeine Fasan, *G.*—Fasant, *D.* *Figures* of an adult male and female, correctly drawn, but, especially as regards the *former*, rather heavily coloured. “The Pheasant has derived its designations, generic and specific, from *Phasis*, a river of *Colchis*, the modern Mingrelia; whence this valuable was first brought into Europe, by the Argonauts, on their return from the celebrated expedition into Asia.”

PLATE XIII. Whimbrel,—*Numenius phæopus*,—le Courlis corlieu, *Fr.*,—il picciolo Chiurlo, *Ch. minore*, *It.*,—der Regenvogel, mittlerer Brachvogel, *G.*,—de kleine of Regenwulp, *D.* A species (*Scolopax phæopus*, Gmel.), widely diffused over the old continent; and a winter-visitant of its more temperate regions. Breeds within the Arctic circle; sometimes, according to Flening, in the Shetland isles. Principally distinguished from Curlew, by inferiority of size. *Food*: insects, worms. *Nest*: formed on exposed heath and moorlands. *Eggs*: 4, olive-brown, spotted and blotched with darker reddish-brown. *Fig.* an adult,

PLATE XIV. Desmarest's Cormorant,—*Phalacrox Desmarestii*,—le Cormoran de Desmarest, *Fr.* A native of Shores of Black Sea, and its tributary streams. Resembles, in size, appearance, and habits, the common Shag; but distinguished by greater length of wing, and longer and more attenuated bill. *Fig.* an adult.

PLATE XV. Black-bellied Water-Ouzel,—*Cinclus melanogaster*,—la Cincle à ventre noir, *Fr.* So specifically designated by Brehm; but regarded, by Temminck and Gould, as probably a mere variety, dependent on climate or situation, of *C. aquaticus*; than which it is smaller, and more deeply coloured above and below. *Food*: insects and their larvæ. *Fig.* an adult.

PLATE XVI. Sabine's Gull,—*Xema Sabini*,—la Mouette de Sabine, *Fr.* An Arctic species. Two specimens recorded, in No. 5 of *Magazine of Zoology and Botany*, as recently killed in the bays of Belfast, and Dublin. An admirable description of it, *Larus Sabini*, given by Dr. Richardson, p. 428 of *Fauna Boreali-Americana*. *Fig.* an adult male in summer-plumage.

PLATE XVII. Willow Locustelle,—*Locustella*--*Sylvia*--*luscinoïdes*,—le Bec-fin des saules, *Fr.* A new species, very limited in its range; discovered, by Savi, in South Europe. Arrives in Tuscany about

middle of April; and frequents willows, and reeds of marshy districts. *Food*: insects and their larvæ. *Nidification*, and winter-retreat,—probably Africa,—yet unknown. *Fig.* an adult.

PLATE XVIII. Noddy Tern,—*Sterna stolidus*,—le Mouette brun, ou le Fou, *Fr.* Of this bird, common in America, two specimens, the first observed in Europe, were killed, in 1830, off the Irish coast, near Wexford. *Food*: small fishes taken in *skimming along the water's surface*. *Nest*: of twigs and dried grass, built in bushes and low trees. *Eggs*: 3, reddish-yellow; patched, and spotted, with dull-red and purple; said to be deposited on shelves of rocks in Bahama Islands. *Fig.* an adult.

PLATE XIX. Bifasciated Lark,—*Certhilauda—Alauda—bifasciata*,—l'Alouette bifasciée, *Fr.* Described by Temminck, in 3rd Part of his *Manuel*, as an occasional visitant of eastern and southern Europe. Common on banks of the Nile, and in Abyssinia. Differs from *Alauda* genus in curved and elongated figure of the bill, and comparative shortness of toes and nails. *Food*, and *Nidification*, unknown. *Fig.* an adult Male.

PLATE XX. Common Gull,—*Larus canus*,—la Mouette à pieds bleus, *Fr.*,—Gabbiano mezza mosca, *G. minore*, *It.*,—die kleine graue oder Sturm-Mewe, *G.*,—Gryse Meeuw, *D.* Common on the British coasts; resident there; breeding on rocky headlands, islands, and shores of lakes. Sometimes wanders inland, and, rook-like, follows the plough, in small flocks, searching for worms and insects. *Nest*: formed of sea-weed and grasses. *Eggs*: 2—3, yellowish-white, blotched with brown and grey. *Fig.* an adult, and young bird.

TWENTY-SECOND PART.

PLATE I. Imperial Eagle,—*Aquila imperialis*,—l'Aigle impérial, *Fr.*,—der Königsadler, *G.* A noble bird, native of Eastern Europe; more limited in range, than its congener, *A. chrysaetos*, which it closely resembles in figure and habits: but at once distinguished, in adult age, by the large white marks situated on the scapularies. Resides, principally, in extensive mountainous forests; *feeds* on Mammifera and large birds; and forms its *nest* on mountain-trees or high rocks. *Eggs*: 2—3, dull-white. Temminck describes “the trachea as composed of solid and almost contiguous rings, and forming an annular ossification at the lower larynx; and the bronchi as having broad rings, which gradually lessen in diameter as they approach the lungs.” *Fig.* an adult, and young bird.

PLATE II. Pallid Harrier,—*Circus pallidus*. A fine species met with on the banks of the Rhine; probably common in Spain; and heretofore confounded with *C. cyaneus*: from which it differs in occiput of *male* not being white, spotted with pale-brown; in absence of dusky streaks on breast; in the rump and upper tail-coverts being white, barred with brown-ash; and in having seven bars, instead of four, on the under-tail. Plumage of *female* two shades lighter than that of female of *C. cyaneus*; tail marked with six broad fuscous bars, instead of four, and tail-feathers much more pointed. The remains of six lizards were found in the stomach of an individual. *Nidification*: unknown. *Fig.* an adult.

PLATE III. Lesbian Bunting,—*Emberiza Lesbia*,—le Bruant de Mitilène, *Fr.* A rare but widely-diffused species; inhabiting the eastern parts of South Europe, Greece, Italy, Provence. Habits resembling those of other members of the Family. *Fig.* an adult male, and female.

PLATE IV. Yellow Willow-Wren,—*Sylvia icterina*,—la Bec-fin ictérine, *Fr.* A continental species; inhabiting Italy, France, Holland; distinguishable from *S. trochilus*, and *rufa*, by forked tail an inch longer than the wings, and “comparative length of quills and tarsi:” from the *former*, again, by its longer bill;—from the *latter*, by a somewhat shorter wing. *Food*: arboreal insects. *Nidification*: unknown. *Fig.* an adult.

PLATE V. Velvet Scoter,—*Oidemia*—*Anas*—*fusca*,—la grande ou double Macreuse, *Fr.*,—la doppia Velia, *It.*,—die braune Ente, rustfarbige See-Ente, *G.*,—bruine Zee-Eend, *D.* Largest species of genus; distinguished from *O. perspicillata*, and *nigra*, by snow-white bar across wing; patch of white beneath eye; and more dilated bill, with slighter traces of the swollen tubercle. A winter-migrant from the Arctic circle. *Food*: Mollusca, obtained by diving. *Nest*: of grass, lined with down, on the banks of large rivers. *Eggs*: 8—10, white. *Fig.* adult male.

PLATE VI. Red-throated Pipit,—*Anthus rufogularis*,—le Pipit à gorge roux, *Fr.* Native of India and Africa; sometimes visiting Europe. Differs from our common Pipit, and all other known species of the group, in *rufous-brown colour of throat*, frequently extending to chest and abdomen. *Supposed* to resemble them in *food*, habits, and *nidification*. *Fig.* adult male, and female.

PLATE VII. Brunnich’s Guillemot,—*Uria Brunnichii*,—le Guillemot à gros bec, *Fr.* An inhabitant of northern regions; and probable visitant of British shores. Heretofore confounded with *U.*

troile ; but distinguished by more stout and abbreviated figure of bill, and much shorter distance from its tip to the nasal orifices. Habits the same. *Fig.* an adult.

PLATE VIII. Keptuschka Lapwing,—*Vanellus Keptuschka*,—le Vanneau Keptuschka, *Fr.* A rare species from eastern Europe ; inhabiting, also, Persia, Asia Minor, and Siberia ; and believed, by Dr. Wagler, to be identical with *V. gregarius*. Closely allied to *V. cristata* : yet thought “ sufficiently distinct from the typical form of the genus, to constitute a separate group.” *Fig.* an adult male, and young bird.

PLATE IX. Great Eastern Horned Owl,—*Bubo Ascalaphus*,—le Hibou Ascalaphus, *Fr.* A magnificent species ; inhabiting southern and eastern Europe ; and apparently representing, in the temperate regions of Asia and Africa, *B. maximus*, of the north. Habits, and *nidification*, unknown. *Fig.* an adult male, splendidly executed.

PLATE X. Dusky Shearwater,—*Puffinus obscurus*,—le Pétrel obscur, *Fr.* Distinguished only, by inferiority of size, from, and believed to resemble in habits, *P. Anglorum* ; but frequenting the southern, while the *latter* is “ almost exclusively confined” to northern seas. No differences of plumage, dependent on sex or age. *Fig.* an adult.

PLATE XI. Black-winged Gull,—*Xema—Larus—atricilla*,—le Mouette à ailes noires, *Fr.* Not the *L. atricilla* of Temminck,—*Zema ridibunda*. of modern Ornithologists ; but an American bird ; one specimen only of which has, hitherto, been taken in Britain. Habits, and *food*, those of its congeners. Frequents marshes and newly-ploughed fields, in search for worms and insects. *Nest* : formed in marshes near the coast. *Eggs* : 3, dull-clay colour, thin and irregularly blotched with pale purplish-brown. *Fig.* an adult bird.

PLATE XII. Semi-palmated Sandpiper,—*Totanus semi-palmatus*,—le Chévalier semi-palmé, *Fr.* An inhabitant of North America ; described by Wilson,—see *American Ornithology*, by Jardine, vol. ii, p. 319,—under the name of *Willet* : so termed from its peculiar cry : toes, as the specific designation indicates, *half-webbed*. *Food* : the inhabitants of bivalve shells, aquatic insects, and marine worms. *Nest* : of wet rushes and coarse grass, among herbage of salt-marshes. *Eggs* : 4, very thick at greater end, and tapering to a narrow point at smaller : dark dingy-olive, blotched with blackish-brown : and, during incubation, resting, nearly upright, on the smaller extremity. *Fig.* two adult birds, in summer- and winter- plumage.

PLATE XIII. Snow-Goose,—*Anser hyperboreus*,—l'Oie hyper-

borée, ou de neige, *Fr.*,—die nordische Schneegans, *G.*,—nordsche Sneuwgans, *D.* This fine bird,—*Anas hyperborea*, of olden time, —a native of polar regions, migrates, in winter, to eastern Europe ; and occurs in Austria and Prussia. Common, also, in Hudson's bay. *Food*: generally, insects, rushes, roots of reeds and other marsh-plants, torn up, in hog-fashion, by its strong and serrated bill: in Autumn, berries, especially those of *Empetrum nigrum*. *Eggs*: white, regularly ovate; larger than those of Eider Duck. *Fig.* an adult.

PLATE XIV. Creeping Locustelle,—*Locustella*—*Sylvia*—*certhiola*,—le Bec-fin trapu, *Fr.* A very rare bird; first described by Pallas; and distinguishable from the other two species of the genus, by larger size and greyish-white termination of the tail-feathers. Occurs in South-Russia. Habits, and *nidification*, unknown. *Fig.* two of adult bird.

PLATE XV. Bridled Guillemot,—*Uria lacrymans*,—le Guillemot bridé, *Fr.* Considered, by Temminck and the French naturalists, as a distinct species; but commonly associating with *U. troile*; and differing from it, only, in the white line which, encircling the eye, passes down the side of the head. *Fig.* an adult.

PLATE XVI. Rosy Grosbeak,—*Erythrospiza rosea*,—le Bouvreuil Pallas, *Fr.* A native of the northern regions of the old Continent; but occasionally visiting Hungary and central Europe. Differs from *Fringilla purpurea*, of Wilson, and *E. erythrina*, in its longer and less laterally swollen bill. *Fig.* an adult male. *Female*, at present, unknown.

PLATE XVII. Rock or Shore-Pipit,—*Anthus aquaticus*,—le Pipit spioncelle, *Fr.*,—Pispolada spioncella, *It.*,—der Wasser-Piper, *G.* Heretofore known under the various names of *Alauda petrosa*,—*obscura*, and Dusky Lark. Permanent in the British islands; inhabiting rocky and elevated portions of the coast, during summer;—in autumn and winter, muddy sea-shores. Resembles, in call-note and song, the common Pipit; but distinguishable by larger size, and more obscure and dusky colouring of plumage. *Food*: marine insects and worms. *Nest*: formed in clefts and ledges of rocks, of marine grasses, lined with hair and fine vegetable substances. *Eggs*: 4—5, light yellowish-grey, with reddish-brown specks over larger end and sometimes whole surface. Mr. Gould suspects the existence of two species of Rock-Pipit: the British never exhibiting the uniform vinous tint which pervades the breast of continental specimens. *Fig.* an adult.

PLATE XVIII. White Crane,—*Grus leucogeranus*,—la Grue leucogerane, *Fr.* A rare and splendid species, “lately added to the European Fauna:” its native habitation, the northern and central parts of India; and, at present, seen only in eastern Europe. Distinguishable from common species, by larger size, snow-white plumage, and longer bill. *Food*: frogs, ova of fishes, snails, Crustacea, and bulbous roots. *Fig.* an adult.

PLATE XIX. Schinz’s Sandpiper,—*Tringa Schinzii*. This is the species so designated by Buonaparte,—not *T. Schinzii*, of Brehm, which, on examination of specimens transmitted by that naturalist himself, Gould believes to be merely a smaller variety of *T. variabilis*. One specimen alone of the American bird, an accidental straggler, has yet been killed in Britain. Voice resembling, but more feeble than, that of Dunlin. *Eggs*: 4, smaller than those of congener, just mentioned; yellowish-grey, spotted with olive- or chestnut-brown. *Fig.* two, adult.

PLATE XX. Spur-winged Plover,—*Pluvianus*—olim *Charadrius spinosus*,—le Pluvier armé, *Fr.* An Asiatic and African species; inhabiting Russia, and occasionally visiting south and eastern parts of Europe. Distinguished from congeners, by *spurred wing*. *Nidification*: unknown. *Fig.* an adult male.

PLATE XXI. American Cuckoo,—*Coccyzus Americanus*,—le Coucou cendrellard, *Fr.* An occasional visitant of British islands. Four specimens only yet captured here: and first account of it given in *Field-Naturalists’s Magazine*. Following, the generic characters of this interesting member of the Cuckoo-Family: Bill, of moderate length, strong, arched; culmen convex, base compressed. Nostrils basal, elongated. Wings short. Tail long, cuneiform. Tarsus and middle toe long and equal. In America, from the resemblance of its note to “cow,” it has acquired the popular designation of *Cow-bird*;—in some states, *Rain-crow*, from becoming especially vociferous before rain. Unlike its European congener, the Cow-bird constructs a *nest*, which is flat, simple, formed of a few dry sticks and grasses, much like that of common Dove; and assiduously rears its young. *Eggs*: 4—5, elongated oval, bright-green. Occasionally, however, the strong family-propensity to theft and fraud breaks out; exhibited in the abstraction of the eggs from, or deposition of its own in, the nests of other birds. *Fig.* an adult.

PLATE XXII. Swallow-tailed Kite,—*Nauclerus furcatus*,—la Milan de la Caroline, *Fr.* A native American; two specimens only yet killed in Britain. Fully described by Wilson, Audubon, and

Nuttall. Flight, exceedingly smooth and graceful. *Nest*: formed, in the summit of lofty oak or pine, of sticks, with moss and grass, and lined with feathers. *Eggs*: 4—6, greenish-white, irregularly blotched with dark-brown at larger end. *Food*: lizards, snakes, insects and their larvæ. *Fig.* an adult, superbly executed.

PLATE XXIII. Audouin's Gull,—*Larus Audouinii*,—la Mouette d'Audouin, *Fr.* A supposed native of northern and western coasts of Africa. Occurs in Mediterranean. Distinguished from the species of genus, *Xema*, by situation of nostrils, and absence of black head in Summer. *Fig.* an adult male, in summer-plumage.

PLATE XXIV. Vinous Grosbeak,—*Pyrrhula githaginea*, Temm.,—le Bouvreuil githagine, *Fr.* A native of northern and central Africa, Nubia, and Syria; occasionally passing into South Europe, and the Grecian Islands. Provisionally placed in *Erythrospiza*, by Gould. *Fig.* an adult male, in his rich rosy colouring. *Female* said to be of an uniform light-brown, faintly clouded with rosy hue; and under-surface, and wings, clear isabella-brown.

PLATE XXV. Bulwer's Petrel,—*Thalassidroma*—*Procellaria*—*Bulwerii*,—an inhabitant of Madeira and adjacent isles. Admitted as a British bird on the evidence of the fact of one individual having been found dead on banks of Ure, near Tanfield, Yorkshire. Distinguished by cuneated figure of tail, and larger size, from all other species of the genus. *Fig.* an adult.

PLATE XXVI. Terek Godwit,—*Limosa Terek*,—la Barge terek, *Fr.* An occasional, but rare, visitant of the European continent. More nearly allied to *Tringa*, than, although provisionally assigned to, *Limosa*. *Fig.* an adult, in its pale-brown winter-plumage; which gives place, in Spring and Summer, to a mottled and spotted garb, particularly on the upper surface where the larger markings assume a lanceolate figure.

PLATE XXVII. Hybrid Grouse,—*Tetrao hybridus vel medius*,—le Tétrás Rakhelhan, *Fr.* Probably not a distinct species; but the hybrid progeny of the Cock of the Woods and Black Grouse. Found only in countries, such as Norway and Sweden, which are inhabited by both birds. Would not a careful examination of the sexual organs serve, at once, to decide this controverted point? *Fig.* an adult bird.

PLATE XXVIII. Pectoral Sandpiper,—*Tringa pectoralis*,—le Bécasseau pectorale, *Fr.* of this bird, an inhabitant of North America, one specimen only has yet been killed, or, we believe, seen, in Britain. An account of this interesting occurrence has been given by Mr. Hoy,

in Loudon's *Magazine of Natural History*: and a figure of the bird, by Mr. Eyton, in his continuation of Bewick. The *figure* of the specimen in question,—a female,—executed in Mr. Gould's characteristic style of accuracy and elegance, terminates this, the concluding Part of a work, splendid, interesting, and valuable, beyond all our feeble powers of eulogy or expression; and, certainly, yet unrivalled in that department of Zoology to the illustration of which it is devoted.

In addition to the eight supernumerary Plates, this last Part contains the Title-pages, and Indexes of the Plates, of the five Volumes which the whole is destined to form; Dedication, Preface, Introduction, List of Subscribers, and general List of Plates, systematically arranged under the five Orders of *Raptores*, *Insessores*, *Rasores*, *Grallatores*, and *Natatores*.*

* On some future occasion, we propose to give an extended notice of the other ornithological works of the accomplished and indefatigable Mr. Gould; and an abstract of the valuable German work on the *Nests and Eggs of Birds*, to which we have adverted in the former part of this Analysis.

P.

Paradise-street, Birmingham.
March, 1839.

THE MUSICIAN ABOUT TOWN.

THE only theatrical novelty, connected with music, that has occurred since the publication of our last number, has been the opera of "Farinelli," from the pen of Mr. Barnett, and which was brought forward at Drury Lane on the 8th of February. The composers of operatic music appear to have established to themselves a prescriptive right of making ad libitum demands upon the toleration of their audiences for every species of license they may think fit to take with the plot, situation, incident, and character, of the drama they have determined to illustrate and embellish with their own art. The more preposterous the story and treatment of the libretto, the greater the probability that a musician will be found to adopt it. One would suppose (judging by the character of all the operas that

have been produced for the last twenty years) that either the composers take a pride in displaying the triumph of their art over an untoward and inert mass of worthless plot, or are like some unwise and egotistical actors, who can bear no rival in merit near the throne, and therefore make a point of selecting a foil for the character which most immediately comes in contact with their own. Whatever the cause may be, the fact is certain, that when a new opera is announced we always make up our minds to be disgusted with the story, and to lament for the misjudgment or perversity of the composer. Even Mr. Rooke's opera of "Amelie" never could have endured for a fortnight, had it not been for the popular predilection for all music of the Tyrolean character. The drama itself would have been performed to empty benches after the first night. Mr. Barnett's most successful opera has been "The Mountain Sylph," and this not wholly on account of the music in it, charming and classical as that music is; but the story is an interesting one, and the treatment of it, both scenical and lyrical, reflects high credit upon the authoress, Mrs. Shannon. But Mr. Barnett's music of "Fair Rosamond," taking it through all its range, was of a much higher character than that of his Mountain Sylph: there were in it concerted pieces and melodies worthy of the great masters of dramatic composition; but his story being absolutely contemptible, the force of his genius alone could not indemnify the treasury of the theatre for the large outlay of expense in producing it; and Fair Rosamond is a shelved opera, while the Mountain Sylph takes its rotation with other stock pieces, and always attracts an admiring audience when its characters are creditably filled. The same provoking objection holds good with regard to his last grand opera. It would be difficult to collect a longer list of discrepancies, and violations of all propriety, historical and dramatic, in any single piece, than have been ingeniously brought together in the "Farinelli;" the whole incident in which professes to turn upon the celebrated anecdote of that prince of singers having, by his divine art, (like David of old), exorcised a King of Spain from the demon hypochondria. In the first place, the *poet* (we use this term conventionally, and not from distinction) has made Farinelli wander through Spain upon a speculative tour, and without a sixpence in his pocket; whereas, he was at that time master of a princely fortune. He has made him a lover, has given him a mistress; a political intriguer in the cause of the queen; neither of which characters was consonant with his nature and habits: and, to crown all, he has multiplied the very incident upon which his story professedly

turns, by curing the king—not with Farinelli's song, but with a good dinner and a bottle of wine! The composer, too, has committed a physical anachronism by making his hero a bass singer, whereas he was an artificial soprano. There was the less necessity for this violation of historical truth, inasmuch as there were two other principal basses, and only one tenor; and that one among the subordinates. Add to all these detractions a dialogue ill-written, and without a single point of wit or humour, and we have the ground-work of Mr. Barnett's grand opera.

The prevailing characteristic of the music in Farinelli is, that it is monotonous, and that monotony of a rather grave character. The influence it had upon the unsophisticated portion of the audience was perfectly distinct. It was listened to with all the respect due to a man of acknowledged and high talent; but it produced no simultaneous indications of pleasure. The nature of the applause which did succeed some of the movements, was not to be misunderstood for a moment. The strength of Mr. Barnett's talent appears to lie chiefly in his orchestral accompaniments, wherein he manifests exquisite taste and discrimination. They are always rich and full, never overloaded. He is fertile in resources, and is intimate with the genius and capabilities of each instrument; we have, therefore, no smothering of non-effects by a prodigal employment of the brass band. His full effects are always well built up, and conspicuous in their parts. His fortes are fine constructions of harmony, not mere torrents of noise. Add to all this, there is a handsome disdain of all clap-trap in his music. He does not care to win the good opinion of coach-guards and cads by writing calf-like obligati for the bugle horn. He is content to write as much as he can like Mozart, and he is always choice and judicious in the character of his accompaniments. The most beautiful compositions in the Farinelli are a duett, with clarinett and flute obligati ("Fairest lady, fear no danger"); an excellent piece of fugue writing, at the close of the first scene; and a very charmingly constructed quintett ("Alas! entreaty will prove vain") in the first act. In the second, we particularly distinguished the opening recitative and air by the king, "Where shall I turn for rest?" in the latter movement of which there is a good progression in the bass that bore a strong family likeness to the manner of Mozart. And, lastly, an air by Leonora (Miss Poole), to our taste, the sweetest melody, as a solo, in the opera. It begins, "Cold deceiver, fare thee well!"

Taken as a whole, the music in Farinelli has given us less pleasure than that in the Fair Rosamond; for the reasons that we think

it less characteristic, much less varied, and still less natural. For his own interest's sake, it is to be hoped that, in future, Mr. Barnett will be careful of expending months of anxious thought and beautiful writing upon an unworthy subject.

The first Philharmonic Concert of the season took place on the 4th of March. The two symphonies of the evening were, Beethoven in *D* No. 2, and Mozart in *c* No. 1. The latter has been less frequently performed by this society than the other works of that consummate master: the result, no doubt, of accident rather than intention; for it is throughout fully worthy of his fine genius, and perfectly rational taste. However bold and daring may be the flights of Mozart's fancy, he never for one moment is fantastical, or commits himself by an affectation of any kind. Not only had he the most varied musical genius, but it was at the same time the most justly balanced, and the most uniformly under controul. The intention, the design, and the carrying out, of any composition by Mozart, however complicated, is as clearly an affair of contrivance and selected combination, as to a mathematician would be the arranging of all the points of a syllogism to construct some high argument. His is the direct reverse of a great portion of the modern style of writing; where unrestrained wildness is called bold originality; a string of disjointed passages, freedom in composition; and a contempt of design and order, independence of thought. Mozart aimed at being understood.

After the first symphony, Miss Birch sang, and with praiseworthy care, the recitative and aria from the "*Così fan tutte*"—"Per pietà, ben mio, perdono;" a piece eminently calculated to display a voice of extensive compass, at the same time combining the most exquisite melody with tenderness of expression. The very accompaniments to this song may rank among the triumphs of Mozart's skill. Mendelssohn's last piano forte concerto (No. 2) followed:—the same which was played by the composer himself at the last Birmingham festival, and by Mrs. Anderson at the first Philharmonic concert last year. Mad. Dulcken performed it upon the present occasion, and with distinguished brilliancy; most especially the finale, which is as difficult a movement to express in all its vigour, with its lights and shades of expression, its leanings and sudden crescendos, as in its subject and treatment it is original and great. The andante, which flows in the most graceful and natural manner out of the introductory movement, is our favourite; and it is, perhaps, as charming a combination of melody and harmony, as this eminent young genius has hitherto produced.

Miss Hawes and Mr. Manvers (an industrious and promising young singer) sang a duett for counter tenor and tenor, from the new psalm by Spohr, "God, thou art great." The subject of the duett is sweet, but we think too often repeated, and the whole composition too long. In this same work there is a remarkably fine movement, and very original in character, commencing with the altos and basses, "Walk ye in love and truth." The step of the subject is both stately and impressive.

A M.S. overture, entitled "Parisina," from the pen of our admired young countryman, Sterndale Bennett, concluded the first act. It is of a somewhat unusual construction, commencing in B minor, and ending in G. From a single hearing, it appeared to us to exhibit considerable talent, but not a sufficiently varied manner. Two excellent judges, however, near us, who had also heard it at the previous rehearsal on Saturday, agreed that it improved upon acquaintance. This overture is one of Mr. Bennett's earliest productions.

After the noble song from the "Alexander's Feast" ("Revenge") and delivered with triumphant expression by Mr. H. Phillips, Mr. Richardson, formerly a pupil of the Academy, and of the late Mr. Nicholson, performed a fantasia on the flute. The composition was by his master, and in all probability performed by him at one of his annual benefit concerts. We have little to say in commendation of that, but could say much of the pupil he has formed to succeed him. Judging by Mr. Richardson's performance upon this occasion, and by the effect it had upon the whole room, we have no hesitation in saying that he has a fortune within his grasp. His tone is pure and very sweet, more, perhaps, calculated for solo than orchestral performance; his expression is tasteful and delicate; and his execution exact and brilliant. The effect he produced in the room was the more certain and remarkable from the unbroken attention which followed what, even under favourable circumstances, was a long performance; and under less prosperous ones would have been most injudicious. The pretty quartett from Dr. Crotch's "Palestine," "Lo! star-led chiefs," followed; and Romberg's noble overture in D concluded a fine musical concert. Mr. Mori led, and Sir G. Smart conducted. The band have received a few important additions: among them, Baumann the bassoon, and Flower, the double bass.

Mori and Lindley's classical quartett concerts have this season increased in attraction. Last year they were held in Willis's rooms, which became more and more crowded as the series proceeded. This

year the Hanover Square rooms have been proportionately occupied. This circumstance is a favourable indication of the advance that sterling music is making in England; for such has essentially been the class of composition performed at these concerts. We have had the quartets of Haydn, Mozart, and Beethoven; the quintets of Onslow, the double quartett and nonetto of Spohr; interspersed with trios of Corelli, and a fugue of Sebastian Bach, arranged for piano-forte and double bass; Dragonetti taking the pedale. This last piece, by the way (the prelude and fugue in E minor), was not played in the satisfactory manner we could have wished. Mr. Benedict at the piano forte was too loud and hurried, predominating over and clouding the masterly light and shade of Dragonetti's performance. Mr. Benedict is evidently not intimate with the style of that old music: but subsequently, and during the same concert, he and Mr. Schulz played Mozart's magnificent concertante in D for two pianos. Both instruments and performers were nicely balanced—Benedict has the more powerful finger; but Schulz's reading of the slow movement was exquisitely refined and polished. This, with the very masterly execution of Mori, in the slow movement to the double quartett, which contains passages of excessive difficulty, were, according to our recollection, the most attractive features of the series; the vocal department, but so so; excepting, however, Miss Masson's animated and excellent reading of Haydn's magnificently conceived cantata, "Ariana a Naxos;" his very finest specimen of dramatic composition. From the success that has attended Mr. Mori's exertions this season, it is clear what his energy and activity will lead him to accomplish next year.

Another feature of the musical times is the success of Mr. Moscheles. A series of performances, consisting principally of piano forte compositions, and all of them played by the same artist, would have been received, only a few years ago, with utter indifference. Now we witness a numerous company listening with evident gratification to the fugues and lessons of Scarlatti, the sonatas of Mozart, Beethoven, &c. Some of the most accomplished of Mr. Moscheles' playing has been in the harpsichord lessons of Scarlatti; in which a thorough acquaintance with the author's style, and a perfectly free and neat execution, were equally conspicuous: and his most extraordinary performances for force and brilliancy, were, a selection from his "Characteristic Studies," among which the one entitled "Terpsichore" (a furiously difficult movement, and in strict keeping and character with its title); also a "Galop chromatique," by Liszt, which Mr. Moscheles, it is to be presumed, selected to

show what a host of notes could be squeezed into a bar of "presto" time, and that he could articulate them; for the movement itself might with propriety have emanated from a lunatic asylum. The compositions we have hitherto heard from the pen of Liszt have not impressed us with admiration commensurate with the immense fame he has acquired. One specimen of the old school of writing, played by Mr. Moscheles, proved highly interesting on account of its quaintly pleasing character: and that was a fantasia by Orlando Gibbons, adapted from the old virginal book, by John Cramer. A pastoral variation in one of the movements is extremely agreeable. The composition was also interesting inasmuch as it exhibits the advance which had been accomplished in manual execution so early as the sixteenth century.

One of the new compositions performed at these musical matinéés, was a sonata for piano forte and violoncello, by Mendelssohn: his Op. 45, and, we believe, latest work. The piece is conceived throughout perfectly in the *sonata style*; elegant and flowing, and admirably adapted to display the powers of the two instruments for which it is written. In the first movement, the composer appears to have been haunted by a favourite passage of melody in a romance by poor Malibran, called, we think, "Rien n'est doux comme la voix qui dit, Je t'aime." We remember hearing Mendelssohn take the same subject for an extempore fantasia when Malibran was present, incorporating it with two other subjects from her romances, which she had been singing, and treating them with that astonishing power for amplification and combination, which renders him the most accomplished extempore player of the present day.

At the same concert Mr. Moscheles introduced a new serenade by Hummel, upon favourite subjects from Mozart, Haydn, Cherubini, and Spontini. The piece was arranged for a quintett band, consisting of piano forte, violin, harp, clarinet, and bassoon; and played with exquisite union of tone by Messrs. Moscheles, Blagrove, Wright, Willman, and Baumann. The vocal department at these concerts has been judiciously appointed, both as regards the selection and the singers. The latter were Miss Masson, Miss Dolby, Mrs. Toulmin, Miss Hawes, Miss Kroff, Mr. Parry, jun. and Alfred Novello. Much may be expected from Miss Dolby, judging by the very creditable manner in which she sang the "Ah! perfida" of Beethoven, and which was transposed one-third below the original key of E flat, to accommodate her compass, being a mezzo soprano. This young lady (one of the Academy pupils) possesses four important requisites to form a successful vocalist: a rich and full

tone ; an accurate intonation ; a facility in reading ; and a self-possessed, but modest, unpretending, deportment. To all these qualities might be added, a handsome exterior ; but "Favour is deceitful, and beauty is vain," says the royal aphorist.

Mr. Moscheles, by these classical performances, is rendering good service to the cause of sterling music. By placing before the rising generation the various styles of the great writers in all schools, ancient and modern, they will be led to appreciate the good and solid by comparing it with the merely showy and difficult.

Since our last report of "The Sacred Harmonic Society's" proceedings, they have twice performed the "Messiah ;" twice the "Israel in Egypt ;" and on the 1st of March Mendelssohn's "St. Paul." The last oratorio is evidently gaining more and more the public estimation ; several of the movements were encored upon the present occasion, and the last chorus was followed by a universal burst of acclamation from an audience that completely filled the hall. The oftener we hear this magnificent work, the more we feel that it is a class of music calculated perceptibly to arrest both the judgment and the sympathy of the listener, and at each successive hearing to dilate and confirm those feelings : this, at all events, has been our own case. We have now been present at three public performances of the whole oratorio ; and we came away more impressed with the magnitude of its design, the majestic beauty and variety of its chorusses, and the profound skill and elegance of its instrumental score. The solo singers upon this occasion were the Misses Birch, Cawthorne, and Wyndham : Messrs. Bennett, Hobbs, Alfred Novello, Green, and H. Phillips. Mr. Surman, the conductor, took several of the chorusses too fast ; not a common fault with him, but an injurious one, more especially in conducting a large body of voices ; for it is more easy to urge on, than to pull back, a multitude of performers. In several of the movements, too, we noticed that whole passages, and important ones, for the bassoon, were omitted. The principal flute, also, was continually incorrect ; and in that sweet chorus, "O be gracious, ye immortals !" we did not hear the flute at all, and yet in this movement it forms a beautiful feature in the score.

As this society has now attained, and is still increasing in, influence and importance, we would suggest two or three points by which their performances would be materially improved and strengthened. In the first place, we understand that they will very shortly have a new organ of their own. Mr. Walker will, we hope, do them justice and himself credit. With the new instrument the

society ought to have a new organist. From his manner of accompanying the chorusses in the Paul the other evening, it was quite evident that Mr. Miller was not equal to the task he had undertaken: it was like the playing at a Methodist chapel. The society should engage the services of such young performers as Messrs. Pittman, or Brown, Smith, or Miss Stirling: all of whom are excellent pedalists. They ought also to insist upon having the instrument tuned to concert pitch. This, we know, is a work of labour to accomplish with any organ builder; but the low pitch of the instrument, upon each occasion that we have heard it of late, has prejudiced the whole orchestra, which, of course, was obliged to be all tuned down, thereby extracting from its vivacity of tone. Lastly, having engaged such first-rate players as Lindley, and Willman, and Harper, they ought not to remain satisfied without adding the services of Dragonetti, whose influence in music of the character which forms the staple of their performances, would be invaluable. There is no instrument like his (in *his* hand) for steadying or directing the march of a chorus. The report lately published of the proceedings of the society is very gratifying and encouraging. *Esto juncta—esta perpetua*: the one will be the result of the other.

The Italian Opera opened for the season on Saturday, the 9th of March, with the "Belisario," and a new soprano of the name of Monau, and an English lady of the name of Croft. The male singers are Tati, the tenor of last year, A. Giubilei, and F. Lablache. With the exception of the last named, the present company may range under the denomination of the curiously disagreeable. The music to the new ballet of "Robert le Diable" has been cleverly selected and arranged from Meyerbeer's opera, by Mons. Nadau, the leader of the band for the ballets, and who is distinguished by his admirable tact in accompanying the dancers. The orchestra is, as usual, magnificent.

The first Ancient Concert took place on the 13th of March. The only change to be perceived in these heretofore scrupulously select performances is, that they are being converted into a school of practice for the Academy pupils. The time was, when an engagement at the Ancient Concerts was sufficient to secure to the performer a passport through the kingdom. That circumstance alone stamped him a first-rate artist. So desirable a distinction no longer exists. Persons who can, and persons who cannot, sing the compositions of the sterling old writers, are now brought into mischievous collision. We have, however, heard with pleasure that Lord Burghersh contemplates an important change in the programmes of the concerts,

which, on account of their uniformity for some years past, might almost have been stereotyped. His lordship will render good service to the art he loves, by reviving in the orchestra for ancient music the forgotten names of such men as Caldara, David Perez, Giacomo Perti, Righini, Durante, Carissimi, with some of the noble fugues of Leo and Bach.

CRITICAL NOTICES OF NEW PUBLICATIONS.

Our Wild Flowers Familiarly Described and Illustrated. By Louisa Anne Twamley, Author of "The Romance of Nature," "Flora's Gems," &c. The Plates engraved after the Author's Drawings. London: Tilt. 1839. 8vo., pp. 308.

THE writer of this charming book is already well known as an authoress, distinguished by all the delicate taste and exquisite feeling which so peculiarly belong to woman, and whose writings present an agreeable contrast to the worldly and satirical propensities exhibited by too many of her sex, in sundry novels and other light productions which serve to amuse the town. Miss Twamley, our readers ought to know, is a *young* lady, too, and neither spoiled by the dissipations of town-life, so often fatal to all pure love of what is beautiful, nor yet one of the class of sentimental persons who lose sight of what is valuable and real in pursuit of what is morbidly imaginative. She lives, she informs us, near a large manufacturing town; a situation to which we cannot but consider that a young person of her fine imagination is, in some degree, indebted for the preservation of a remarkably healthy tone of intellect; and yet her love of the country and of flowers shines out in every page of her interesting publications. As a painter of flowers, also, Miss Twamley is an artist of very high pretensions; and all these delightful acquirements contribute to adorn the pages of the work before us.

Of all the pleasures of which our frame is susceptible, there are none so early developed and none so durable as those arising from natural objects. As soon as the child's little limbs will carry it about in obedience to its will, it quits the mother's hand to pick up the daisies that lift their clandestine heads on the close-haven lawn; and it screams with delight in the free meadows wherein this pretty flower, not being a forbidden thing, is scattered, in the spring-time, like so much silver over the fresh green grass. But adult age treads close

upon the heels of childhood, and many of us, in populous cities pent, know little more of flowers, except when some charitable country friend sends in a handful of the first offerings of spring; and whilst all the town seems sleeping in cold frost and fog, enlivens our breakfast table with the modest and drooping snowdrop or the lively hepatica. Then, to be sure, summer comes, and each morning a fresh rose reminds us that the out-of-town world is as fragrant and lovely as ever: and it surprises and delights us to find, that when we are old enough to be beginning to surmise that all is vanity, the flowers grow more and more beautiful; that every spring seems more arrayed in loveliness than the last; whilst even the song of birds grows sweeter, and hath a more dying fall, when we quit our places of toil and meditate in the even-tide. And when old age comes, as come it will, who is there of us who does not fancy some calm interval between business and the grave, in which the care of our flowers, and gentle flirtations with the nightingale and thrush, or, in their absence, with the pert but faithful robin, will form our chief delight.

We entreat our youngest readers not to neglect or despise these pleasures in the time of their youth; and when they are old they will not depart from them. Throughout all the years of life, be our station what it may, and our dreams of ambition ever so dazzling, few hours there are which leave so durable and so sweet an impression as those which are devoted to rambling along sequestered lanes with a few light-hearted and innocent children, stopping to look at every modest blossom, running to gather the various wonders of the common grasses, and idly weaving garlands which deck the brow without bringing to it any ache or care. Happy are the children who enjoy these pleasures; and happy they in whom the remembrance of them is so fresh that twenty suffocating summers in money-making cities have not dimmed its precious brightness, or unfitted the heart to reflect it. Yet how often, when thus engaged, we have felt the want of a book which would tell us the names of some of the little lovely flowers which we loved, white and purple gems peeping forth beneath the hedge-row elms, or bolder stragglers leaping with wild luxuriance from branch to branch, as if the meaner shrubs were only made to set forth their greater beauty. Often, deluded by a captivating title, we have added botanical works to our children's library; but as often felt the bitterest disappointment. To turn from the flowers themselves to the work of a botanist is, too generally, like turning from the living to the dead. On the one side, all is beauty and life; on the other, the coldness and rigidity of life extinct. One feels quite convinced that the botanist never saw a flower before it was pulled to pieces, and that all the names are invented to prevent botany from being made vulgar. These guides to botany are very satisfactory, doubtless, to those who know all about it; but to those who are ignorant they teach nothing. In this respect, however, there has of late years been much improvement; and in the work before us we find exactly the book which we have so often wanted. Perhaps, instead of twelve beauti-

ful plates, we should have been glad to see twenty; and instead of so splendidly dressed a book, one that might have been more generally diffused: but publishers are a wilful race, and must have their way. And if this glittering work, which seems intended to lie on drawing-room tables in king's houses, contributes to preserve the worship of nature amidst so much that is in such regions opposed to it, the service will be not insignificant.

Each of the twelve plates in Miss Twamley's book contains exquisitely finished representations of two or three of our ordinary wild flowers; and the text, thrown into the form of conversations between a very excellent "Aunt Lucy" and her niece "Agnes," and a certain "Mr. and Mrs. Evelyn," and their daughter "Constance," contains animated descriptions of these and almost every other familiar English flower, interspersed with very interesting historical anecdotes, and not a little useful scientific information, although the parade of science is most carefully avoided. The first plate contains the *Blue Anemone*, the *Small Celandine*, and, chief of all, the *Snowdrop*, of all spring flowers one in the most general favour, and partly for its being one of the first heralds of the reviving world after the winter's death. But how attractive its beauty! Its tender stalk, its drooping head, as if modest from very consciousness of beauty, its snow-white outer petals, the delicate pencillings of green that variegates its shorter and inner ones, touching their outer rim, and leaving white the upper inner border!—a very lavishing of simple charms on the first flower of the year, betokening boundless stores of beauty to be bestowed without stint on all the successive blossoms of the flowering months to come! There are homilies, indeed, in these things. They speak of an unseen world, and foreshadow its splendour; and more and more they speak to us as our minds receive more cultivation; as if some age of the world would come, in which all their mysterious revelation would be read with clearer eye.

We must quote what Miss Twamley says of the *Snowdrop*, as it contains a very amiable apology for the botanists, whose vitality we have questioned. Aunt Lucy, tempted out by little Agnes, ventures into the garden to see "the first *Snowdrop*:"—

"Is it not a delicate little beauty?" cried Agnes, gently raising the white bell, and showing the green streaked under petals, and the golden antlers within.

"Yes: I always think the name this chaste, modest little flower has received, of 'The Fair Maid of February,' a most graceful fancy; I wish I knew to whom we are indebted for it. Our own name of *Snowdrop* is beautifully descriptive; so is the French, *perce-neige*, and the Italian *buca-neve*, both meaning snow-piercer. The botanical name, *galanthus*, is derived from the Greek, and signifies milk-flower."

"Ah!" said Agnes, "I like those names; they are sensible, and one can remember them, because they mean the thing they belong to; but the strange, difficult, out-of-the-way words so often given as

names of flowers, are enough to frighten one from opening books on botany or gardening."

"I fear me many young people are of your mind, Agnes; but though there may seem some reason in your objections to 'hard names,' as you term them, I think much of the complaint is founded in your own inattention and carelessness. In the first place, you must remember that the thousands of plants with which our beautiful world is adorned, have required no small ingenuity and research from their botanical sponsors to find names for them, and every new vegetable discovery increases the difficulty. Descriptive names cannot always be adopted, or, if they were, the necessity for clearly distinguishing such species as very nearly resembled each other, would soon turn a list of flowers into a dictionary of definitions, and, I need not tell you, become tenfold more puzzling than the most terrible polysyllable extant. Again, very many, indeed nearly all, the names of genera are strictly descriptive, though, being derived from Greek and Latin words, you will not perceive their appropriateness without a translation."—(Page 2.)

But the lovely flower which suggests this little discussion is soon reverted to. The little pupil enquires if it is one of our native plants, or one which has been brought to England.

"The Snowdrop," replied Aunt Lucy, "must assuredly take the lead in our chronicle of English wild-flowers now, although I am much inclined to think it is not absolutely a native of the soil, from the fact that the old poets do not in any way allude to it, but speak of the primrose as the first flower of spring. The dramatists Beaumont and Fletcher say—

'Primrose, first-born child of Ver,
Merry spring-time's harbinger,
With her bells dim.'

Shakspeare has no Snowdrop in his delicate groups of flowers, though he speaks of 'Daffodils

'That come before the Swallow dares, and take
The winds of March with beauty.'

Ben Jonson, another of the grand old dramatists, who loved to talk of flowers as well as we do, and did it with such grace and eloquence that he seems to paint what he describes, calls the Primrose the 'spring's own spouse;' but says not a word about our chaste little darling here: and all this is to me very conclusive evidence that snowdrops are a later acquisition to our woods and meadows. That excellent botanist, Mr. Sowerby, from whose delightful books I have learned so much, considers it indigenous, from its being found far from uncultivated ground; and it may be so, but I generally meet with it in places where it is probable that gardens *have* been."—p. 4.

We should like here to stretch our reviewing privilege so far as to quote full seventeen pretty stanzas of the fair writer in further illustration of the *Primrose*; but the above extracts will shew how well Miss Twamley contrives to combine useful instruction with observations suggested by feeling and fancy; and to us this constitutes a very great charm of her book. More than two hundred and fifty wild flowers and shrubs are described in it; and concerning each we find some information of a pleasing and useful kind. The grouping of the flowers in the plates is of itself indicative of the deepest love of nature, and the utmost refinement of taste. Some of them make us even restless in our study; impatient to sally forth into the woods and lanes where the originals flourish. For instance, the group of blue and white violets in Plate III, which brings the heavenly perfume of that retiring flower fresh to the sense. But we shall let our little friend Agnes speak:—

“Violets! violets! beautiful, sweet, blue violets!” cried she, skipping off to gather some: “oh, how deliciously they smell! but you saw them first, Aunt Lucy.”

“I smelt them and *pointed* them, my dear, leaving you the pleasure of securing the game; and well knew I should receive my share,” she continued, as Agnes presented a delicate little bunch of the sweet flowers and their dark-green leaves. “I always think the first violets of spring are the sweetest-seeming flowers of the whole year.”

“I wish you would write me something about them, then, Aunt Lucy, will you?”

“Oh! I do not promise to give you both rhyme and reason for all our treasures; and you may find hosts of sweet things written of violets from time immemorial: for Sir Walter Scott said, very truly, that

‘The violet in her greenwood bower,
Where birchen boughs with hazels mingle,
May boast herself the fairest flower
In glen, or copse, or forest dingle.’

And all poets, in all ages, have sung her praises. One of our moderns, the illustrious Thomas Moore, makes some quotations in his *Lalla Rookh*, to show us that these dainty flowers are made use of practically, as well as poetically, in the east, where the most esteemed sherbet is flavoured with them. They are made scientifically serviceable here in the form of a syrup, which detects an acid or alkali in chemical compounds, by turning red with the former, and green with the latter. Violets are cultivated for this purpose at Stratford-on-Avon, and very appropriately; for our immortal Shakspeare, by his often mention, proves his love of them; and their perfume around his native place seems to my fancy a fit and delicate tribute to his memory. We are fortunate in having both blue and white sweet violets in our neighbourhood, for in some localities the blue are not

found ; and they are so lovely together, the white ones so delicately tinged with purplish pink on the back of the petals, and the others so rich and varied in their tint. We call violets blue, yet it is not very correct, for they are of all hues, from full purple down to light pale lavender. The scentless violets, that come in May, are more truly blue. What are you studying now, Agnes ?”

“I am trying to find out for myself whether this is a Buttercup or not, Aunt Lucy, and cannot decide ; will you please to help me ?”—
(Page 24).

But we must not go on quoting about the Buttercup, nor about the Lesser Celandine, which is the flower the pretty Agnes is puzzled with, although Miss Twamley illustrates it with her masterly pencil, and with Wordsworth’s well-known lines. Yet one word more about violets, and we have done. It is interesting to know how widely this delicate and elegant little flower is scattered over the world.

“I wonder if all countries have as beautiful early spring nosegays as we have found this morning,” said Agnes. “Where do violets grow wild, besides England ?”

“All over Europe,” replied Aunt Lucy ; “and travellers have found them in many other parts. In Arabia they are abundant, and much celebrated by the poets ; also in Japan, where they flower from January to April. Desfontaines says both the blue and white are plentiful in the palm groves of Barbary. Hasselquist found it in Palestine, and Loureiro near Canton, in China. Gerarde says it was customary in his time to make them into ‘garlands for the head, nosegays and posies, which were delightful to look on, and pleasant to smell to ;’ but he does not mention the scented ones as being wild. If we visit Wales this summer, we shall find the yellow violet on the mountains there, which Gerarde says will not grow in a garden, and I think it very likely.”—(Page 27.)

Mrs. Howitt’s Spring Song of the Violet concludes the chapter. We may mention that old Gerarde, whom Miss Twamley quotes more than once, was a London surgeon, one of the greatest botanists of his time (which was Shakspeare’s time) ; for he was chief gardener to the famous Lord Burleigh.

We might enrich our pages with borrowing from Miss Twamley’s notices of the Oak, the Elm, the Willow, the Poplar, and many other of our trees ; or, with even more pleasure, take sweet passages from her observations on the daffodil, the primrose, or the lily of the vale. But without pilfering from every chapter, and robbing the book of all the plates also, it would be impossible to give our readers an idea of the beauty and good sense of the publication. Lessons of pure and unaffected morality occur here and there, which cannot fail to come home to the young hearts to which they are addressed : and the warmest philanthropy is evidently under the guidance, in the authoress’s well-ordered mind, of a sound and healthy judgment. For a parent anxious that his children should be worshippers of nature, and yet turn their devotion to profitable uses ; or

for a lover of nature debarred by his situation from frequent communion with the glorious works in which he loves to see evidences of the Great Creator's unfailing hand, we know no book which so thoroughly recommends itself. In an especial manner also, it seems adapted to the service of those who have the care of young ladies, and who, often full of intelligence and feeling themselves, yet need every help to rouse the faculties, and impart a salutary stimulus and direction to the affections of the various minds with which they have to deal.

A book of this kind gives, in such cases, precisely the assistance required: it attracts attention without any laborious effort of the governess, and whilst seeming only to amuse in hours of relaxation, disposes to that *love* of knowledge the absence of which is the most formidable obstacle to its acquirement; so that to instil it is the most important achievement of all education.

Yet again we open the leaves of this beautiful book; and, taking for the present a farewell look at the honeysuckle, the convolvulus, the heaths, and the hare-bell—all delineated with rare loveliness—reluctantly close its pages, as if in so doing we shut out the flowery scenes of “some bright isle of rest.”

Experiments and Observations on the Gastric Juice and the Physiology of Digestion. By William Beaumont, M.D. Surgeon in the United States Army. Reprinted from the Plattsburgh Edition, with Notes by A. Combe, M.D. Edinburgh and London. 1838. pp. 319.

THE reasons which have induced Dr. Combe to reprint the present work from the American original, are, 1st, a strong sense of its inherent importance, and of the numerous applications which may be made of the facts and principles developed in it, to the prevention and cure of disease; 2nd, its comparative inaccessibility to the European physiologist, from the difficulty which still exists of procuring it on this side of the Atlantic; and lastly, an earnest desire that the author should obtain that credit which is unquestionably due to his disinterested and indefatigable labours.

Dr. Beaumont has had the rare good fortune to meet with a case in which an artificial opening into the stomach existed; and through this opening he could see every thing that took place during the progress of healthy digestion: and with the most disinterested zeal and admirable perseverance, he availed himself of the opportunity thus afforded of advancing human knowledge, by engaging the patient to live with him for several years, and to become the subject of numerous and carefully conducted experiments. These experiments confirm the doctrines (with some modifications) taught by Spallanzani and many of the most enlightened physiological writers. His observations were made, our author remarks, in the true spirit of in-

quiry, suggested by the very extraordinary case which gave him an opportunity of instituting them. Having no particular hypothesis to support, Dr. B. has honestly recorded the results of each experiment exactly as it occurred, and submits them to the public, who will duly appreciate the truths discovered, and the confirmation of opinions which before rested on conjecture. Dr. B. produces a body of facts which cannot be invalidated. His opinions may be doubted, denied, or approved, according as they conflict or agree with the opinions of each individual who may read them; but their worth will be best determined by the foundation on which they rest—namely, that of incontrovertible facts.

The opportunity of making his experiments was afforded to Dr. Beaumont in this way. Whilst stationed at Michillimackinac, Michigan Territory, in 1822, in the military service of the United States, the following case came under his care. Alexis St. Martin, a Canadian of French descent, about eighteen years of age, of good constitution, robust and healthy, was accidentally wounded by the discharge of a musket on the 6th of June, 1822. The charge, consisting of duck shot, was received in the left side, the youth being at a distance of not more than one yard from the muzzle of the gun. The contents entered posteriorly, and in an oblique direction, forward and inward, literally blowing off integuments and muscles to the size of a man's hand, fracturing the ribs, and lacerating the lower portion of the left lobe of the lungs and the diaphragm, and perforating the stomach. Dr. B. saw St. Martin in twenty or thirty minutes after the accident, and found a portion of the lung as large as a turkey's egg protruding through the external wound, lacerated and burnt; and immediately below this another protrusion, which proved to be a portion of the stomach lacerated through all its coats, and pouring out the food he had taken for breakfast. After cleansing the wound, and replacing the lungs and stomach as far as practicable, Dr. B. applied the carbonated fermenting poultice, keeping the surrounding parts constantly wet with a lotion, and giving cooling medicinals internally, in liberal quantities. It is unnecessary to follow the doctor through the minutæ of this interesting case; suffice it to say that for seventeen days all that entered St. Martin's stomach by the œsophagus soon passed out through the wound, and the only way of sustaining him was by means of nutritious injections. It is a remarkable circumstance that no sickness, nor unusual irritation of the stomach, not even the slightest nausea, was manifested during the whole time. By the 6th of June, 1823, one year from the time of the accident, the injured parts were all sound, and firmly cicatrised, with the exception of the aperture in the stomach and side. The perforation was about two and a half inches in circumference, and the food and drinks constantly exuded, unless prevented by a tent, compress, and bandage. These dressings were necessarily applied to relieve his sufferings, and retain his food and drink, until the winter of 1823-4. At this time a small fold or doubling of the coats of the stomach appeared form-

ing at the superior margin of the orifice, slightly protruding, and increasing till it filled the aperture. This valvular formation adapted itself to the accidental orifice, completely preventing the efflux of the gastric contents when the stomach was full, but easily depressed with the finger.

The usual mode adopted by Dr. B. of extracting the gastric juice, was by placing the subject on his left side, depressing the valve, and introducing a gum elastic tube five or six inches into the stomach. The quantity of fluid ordinarily obtained was from four drachms to one and a half or two ounces. Its extraction was generally attended by that peculiar sensation at the pit of the stomach termed *sinking*, with some degree of fainting, which rendered it necessary to stop the operation. The usual time of extracting the juice was early in the morning, before he had eaten, when the stomach was empty and clean.

Man, destined to live in all latitudes, and obliged to procure his food from both the animal and vegetable kingdoms, may be surely said to be omnivorous. By aliment is meant whatever substance affords nutrition, or whatever is capable of being acted upon by the organs of digestion. The facility of digestion of different articles of diet, and the quantity of nutrient principles which they contain, have been the subjects of some discrepancy of opinion amongst physiologists. Aliments obtained from plants are less nutritious than those furnished by the animal kingdom, because, in a given bulk, they contain fewer parts that can be assimilated to corporeal substance. The digestibility of vegetable aliments is, however, dependent upon the same laws as those that govern the solution of animal food; and it is facilitated by division and tenderness. However various our aliments may be, the action of our organs always separates from them the same nutritious principles; in fact, whether we live on animal or vegetable substances, the internal composition of our organs does not alter—an evident proof that the substance which we obtain from aliment to incorporate with our own, is always the same: and this affords an explanation of the saying of Hippocrates, “There is but one food, but there exist several forms of food.” The *quantity*, too, of aliment is probably of more importance than the *quality*, to ensure health. The system requires much less than is generally supplied to it. The stomach disposes of a definite quantity: if more, therefore, be taken, than the actual wants of the economy require, the residue remains in the stomach, and becomes a source of irritation, and produces a consequent aberration of function; or it passes into the lower bowels in an undigested state, and extends to them its deleterious influence. Dyspepsia, our author observes, is oftener the effect of over-eating and over-drinking than of any other causes. This leads us to the consideration of hunger and thirst.

Hunger is a kind provision of nature, which warns us of the propriety of repairing the loss which the body is continually undergoing. Much enquiry has been made on this subject, and many

theories have been given to account for the phenomenon. The proximate cause of hunger has by some been conceived to depend on the friction of the nervous papillæ of the empty stomach on each other; by others it has been imputed to the irritation produced on its parieties by the accumulation of the gastric juice; it has been thought to depend on the dropping down of the liver and spleen, when the stomach and intestines; being empty, cease to support those viscera. Magendie, convinced that all the theories on this subject were unsatisfactory, comes to this conclusion, that "hunger is produced, like all other internal sensations, by the action of the nervous system; and it has no other seat than in this system itself, and no other cause than the general laws of organization." This subject is unquestionably involved in considerable doubt and obscurity, but, although confessedly obscure, we are not denied the privilege of patient investigation, and persevering search after truth. Anxious mainly to elicit investigation on the subject, Dr. Beaumont submits the following *theory of hunger*, believing it to be as reasonable, to say the least, as any that has been propagated. Dr. B's impression is, that the sensation of hunger is produced by the *distension* of the gastric vessels, or that apparatus, whether vascular or glandular, which secretes the gastric juice, and is believed to be the effect of repletion by this fluid. On applying aliment to the internal coat of the stomach, which in health is merely lubricated with mucus, innumerable minute papillæ, the orifices undoubtedly of the gastric vessels, immediately throw out a quantity of the fluid, which mixes with the food. This effect, Dr. B. adds, is too sudden, and the secretion too copious, to be accounted for on the ordinary principles and laws of secreting mucous surfaces. And it is more than probable, he observes, in fact, it almost amounts to demonstration, that a large quantity of this fluid must be contained in appropriate vessels, during a fast, ready to obey the call of aliment. Not that our author would be understood to say that the whole quantity necessary for an ordinary meal is eliminated previous to the commencement of alimentation; but that enough is contained in the gastric vessels to produce the sensation of hunger.

Thirst, like hunger, is a wise provision of nature, designed, not to replenish the watery solids of the system, but to dilute the fluids that are carrying on these processes. The calls of thirst are still more absolute than those of hunger, and it is much less patiently endured. Dr. B. apprehends a remote cause of this sensation may be found in the viscosity of the blood, which requires a liquid to render it more fluid, and more susceptible of introduction into the capillaries and secreting surfaces. Dr. Beaumont candidly offers these theories for consideration, persuaded that they will be allowed such weight as they may have a right to claim; more than this he has no wish to ask.

The preliminary steps in the process of digestion are mastication, insalivation, and deglutition. If the *materia alimentaria* could be introduced into the stomach in a finely divided state, these operations

would not be necessary. According to some of Dr. B.'s experiments, aliment is as well-digested and assimilated, and allays the sensation of hunger as perfectly, when introduced directly into the stomach, in a proper state of division, as when the previous steps of mastication, &c., have been taken. Although Dr. B. does not wish to deny the utility of the saliva, he does not attach the importance to its action that some physiologists do. In most of the experiments, artificial digestion was performed without its admixture, and the chyme thus formed exhibited the same sensible appearances, and was affected by re-agents in the same way, as that formed from food previously masticated, mixed with saliva, and swallowed. Its legitimate and only use, he considers, is to lubricate the food, and facilitate its passage through the organs of deglutition.

When food is received into the stomach, the gastric vessels are excited by its stimulus to discharge the contents, and the chymification commences. With respect to the agent of chymification, no part of physiology has perhaps so much engaged the attention of mankind. It has been a fruitful source of theoretical speculation from the father of medicine down to the present age. It was reserved for Spalanzani to overthrow all the unfounded hypotheses of *concoction*, *putrefaction*, *trituration*, *fermentation*, and *maceration*, and to erect on their ruins a theory which will stand the test of scientific examination and experiment. He established a theory of chemical solution, and taught that chymification was owing to the solvent action of a fluid secreted by the stomach, and operating as the true menstruum of alimentary substances. To this fluid he gave the name of gastric juice. Pure gastric juice, when taken directly out of the stomach of a healthy adult, unmixed with any other fluid, save a portion of the mucus of the stomach, with which it is most commonly united, is a clear transparent fluid, inodorous, a little saltish, and very perceptibly acid. Its action on food is indicative of its chemical character. Like other chemical agents, it *decomposes* or *dissolves*, and after combining with a fixed and definite quantity of matter, its action ceases. When the juice becomes saturated, it refuses to dissolve more; and if an excess of food have been taken, the residue remains in the stomach, or passes into the bowels in a crude state, and frequently becomes a source of nervous irritation, pain, and disease, for a long time, or until the natural energy restores the vessels of this viscus to their natural and healthy action, either with or without the aid of medicine. This important principle ought never to be lost sight of. Derangement of the digestive organs, slight febrile excitement, fright, or any sudden affection of the passions, causes material alteration in the appearance of the gastric juice. General febrile irritation seems entirely to suspend its secretion into the stomach, and renders the villous coat dry, red, and irritable: hence the obvious necessity of a scrupulous attention to diet during fever and other acute diseases. Food, under these circumstances, can afford no nourishment, but is actually a source of irritation to this organ, and consequently to the whole system.

On one occasion, Alexis St. Martin had been *drinking* ardent spirits pretty freely for eight or ten days, and the appearances noted by Dr. B. were, some redness and aphthous patches on the mucous surface of the stomach, which was empty, but not healthy. On the following day, these appearances had increased considerably on the exposed surface, and the secretions were vitiated. Circumstances continued through the next day very similar; but on the third day they were greatly aggravated. Notwithstanding this diseased appearance of the stomach, Alexis complained of no symptoms indicating any general disarrangement of the system, except an uneasy sensation and tenderness at the pit of the stomach, with some giddiness, and dimness, and yellowness of vision, on stooping down and rising up again. Dr. Beaumont observes that diseased appearances, similar to these just mentioned, have generally succeeded to some appreciable cause. Improper indulgence in eating and drinking has been the most common precursor of these diseased conditions of the coats of the stomach. The free use of ardent spirits, wine, beer, or any intoxicating liquor, when continued for some days, has invariably produced them. We may justly observe upon this, that it affords some of the strongest arguments which it is possible to obtain in favour of temperance, in eating as well as drinking. Many persons who habitually indulge in the use of stimulants, although not what is called excess, defend the practice by affirming that they experience no bad effects from them. If, like St. Martin, we could *see* the progress of stomachic disease from its first dawn, dyspeptic complaints, and their parent, intemperance, would be less frequent than they are.

It is seldom that bile is found in the stomach, except under peculiar circumstances. When the use of fat or oily food has been persevered in for some time, there is, generally, the presence of bile in the gastric fluids. Whether this be a pathological phenomenon induced by the peculiarly indigestible nature of oily food, or whether it be a provision of nature to assist the chymification of this particular kind of diet, Dr. B. has not yet satisfied himself. Oil is affected by the gastric juice with considerable difficulty. Water and alcohol are not affected. Fluids of all kinds are subject to the same exemptions, unless they hold in solution or suspension some animal or vegetable aliment. Fluids pass from the stomach very soon after they are received, either by absorption or through the pylorus. This affords a solution of the reason why exhaustion from abstinence is quicker improved by liquid than by solid aliment—the rapid absorption into the system of a part of the liquid aliment, and the support which it consequently gives, almost immediately. Our limits will not permit us to follow Dr. B. through all his experiments, but the following may be taken as a condensed view of them.

Vegetables.—Cabbage raw required 2 hours 30 min. for its digestion, boiled 4 hours (its digestion much assisted by vinegar). Potatoes roasted 2 hours 30 min., boiled 3 hours 30 min. Carrots boiled 3 hours 15 min. Beet boiled 3 hours 45 min. Turnips boiled 3

hours 30 min. Beans boiled 2 hours 30 min. Parsnips boiled 2 hours 30 min.

Farinacea.—Rice boiled, soft, was converted into chyme in an hour. Sago in 1 hour 45 min. Tapioca, barley, &c. in 2 hours. Bread fresh 3 hours, stale 2 hours. Sponge-Cake 2 hours 30 min.

Fruit.—Apples sour and hard, 2 hours 50 min., mellow 2 hours, sweet and ripe 1 hour 30 min. Peach mellow 1 hour 30 min.

Fish.—Trout boiled or fried 1 hour 30 min. Codfish cured and boiled 2 hours. Oysters undressed 2 hours 55 min., roasted 3 hours 15 min., stewed 3 hours 30 min. Bass boiled 3 hours. Flounder fried 3 hours 30 min. Salmon salted and boiled 4 hours.

Poultry.—Turkey roasted 2 hours 30 min., boiled 2 hours 35 min. Goose wild, roast 2 hours 30 min. Chicken fricasseed 2 hours 45 min. Fowls, domestic, boiled or roast, 4 hours. Ducks, tame, roast, four hours; wild, roast, 4 hours 30 min.

Meats.—Soused tripe and pig's feet, fried or boiled, 1 hour. Venison steak broiled 1 hour 35 min. Calf or lamb's liver broiled 2 hours. Sucking pig 2 hours 30 min. Mutton broiled 3 hours, boiled 3 hours, roast 3 hours 15 min. Beef fresh broiled 3 hours, roast 3 hours, lightly salted and boiled 3 hours 36 min., old hard salted 4 hours 15 min. Pork steak broiled 4 hours 15 min., lately salted and boiled 4 hours 30 min., stewed 3 hours, roast 5 hours 15 min. Veal broiled 4 hours, fried 4 hours 30 min.

Varieties.—Eggs raw, 2 hours; roasted, 2 hours 15 min.; soft boiled, 3 hours; hard boiled or fried, 3 hours 30 min. Custard, baked, 2 hours 45 min. Milk, 2 hours. Butter and cheese, 3 hours 30 min.: the latter difficult of digestion, from its closeness of texture and containing a large proportion of oil. Suet, 4 hours 30 min. Apple dumplings, 3 hours. Calf's-foot jelly digested in little more than half an hour. Soup, beef, vegetables, and bread, 4 hours. Soup barley (query, gruel?) boiled 1 hour 30 min.

The Cathedral Bell. A Tragedy, in five acts. By Jacob Jones, Barrister at Law. 8vo. London, 1839. pp. 59.

THE great neglect, in late years, of the legitimate purposes and objects of the drama, and the frequent prostitution of the talent employed in its service to the more than questionable taste of the age, have tended much to depreciate the value of theatrical representations in the estimation of reflecting persons. With a few bright exceptions, the productions of the stage for the present century have merely exhibited the talent or peculiarity of an individual actor, instead of generally personifying the passions and sentiments which characterise society.

The revival lately of many of Shakspeare's best plays, reflects great credit on the conductors of our metropolitan theatres. There will always be found some few kindred spirits who can truly admire the genius of the immortal bard, but with the mass of the

play-going public we fear that gorgeous scenery and incantation machinery, with a large corps of supernumerary imps and angels, aided by noisy music and lascivious dancing, will carry off the palm of applause from classical heroes and heroines.

Mr. Jones complains, and, we think, with some justice, of the disappointment he has experienced in not having his play performed; but he may console himself by thinking that he is not the only "gem of purest ray serene," that is swept over by the ocean of public prejudice, and pressed down by the incubus of private interest. Besides, it should be remembered that in the present day lions are so much in request that even a lady, to be interesting, must be associated with that word.

The scene of the *Cathedral Bell* is laid at the city of Saragossa: the time is during the struggle between the Spaniards and Moors. The principal characters are Sebastian, the governor of Saragossa, a noble patriot; Claudio his son, a fiery and generous youth; Francesco, the Moorish commander, who is a renegade; Ricardos, one of Sebastian's officers; and Herodia and Octavia, wife and daughter to the governor. The story of the piece is, that while Francesco is besieging the city, Claudio makes a sally and is taken prisoner. The Moor sends a message to Sebastian, saying that, unless he surrenders the town, his son shall die a lingering death; but the chivalrous Spaniard, faithful to his trust, refuses the conditions. Herodia pleads with all the eloquence of a mother's agony for her son, but in vain. She then resolves to go to the camp and supplicate Francesco. He promises that if she will deliver up the gates Claudio shall be liberated. In the meantime Ricardos, a rejected suitor of Octavia, turns traitor, and engages to admit the enemy within the walls. As night approaches, Sebastian heads a body of his veterans to make a last effort for his son. But whilst he is gone the Moors gain access to the town. He returns to find the gates closed against him. He rallies all his energies, forces the barrier, and the crescent is overthrown. He engages hand to hand with the renegade, whom he slays, but is himself mortally wounded. The subordinate characters all die off in proper order. There is occasionally a mysterious tolling of the Cathedral Bell, which gives a maniac girl, who has been deserted by Francesco, an opportunity of chaunting a monotonous distich. On the whole, the plot is well managed, the characters are duly sustained, the diction is chaste and nervous, and the arrangement of the incidents displays a powerful dramatic conception. We conclude our notice of the *Cathedral Bell* with the following extract, and with wishing Mr. Jones every success in his literary pursuits.

In the last scene of the first act, there is a spirited dialogue between Francesco and Claudio, which is concluded by the following soliloquy by the former:—

"Breath, breath, proud spirit! breath,—nor choke me quite!
Down, swelling passion! down and leave, for shame,

A conqueror's soul unconquer'd of a boy—
 The plagues of Egypt settle on her head,
 This witch, this prophetess, that dogg'd our march,
 Like a demoniac starting from the tombs—
 What fatal inspiration sent her forth
 To hail our land with the croak of doom ?
 ' When thou art bearded by a Christian youth,
 ' And call'd a Renegado to thy face,
 ' Then lost Francesco ! then,' the sibyl cried,
 ' Calamity impends, defeat and death ;'
 A spell is round my path—now, like a knell,
 The braggart's taunts are ringing in mine ears ;—
 What boot my honours, my most high estate,
 My faith abjured, and fortune for the change,
 If this rash boy has summ'd my lease of days,
 And cut me short of Paradise on earth ?
 What, unto minds of purpose and resource,
 Is equal bliss to homage and control,
 Rank undisputed, awe that keeps them worshipp'd,
 And pays them tribute of all things below ?
 Poor are the puling ecstasies of love,
 To that most spiritual sense of self-existence
 Which shares with heaven the thunder-spell of power,
 And, among mortals, crowns one mortal—God !
 I hear a whisper darkle on the air,
 I see no speaker, but I feel the spell,
 Which way I turn, its voice is in mine ear,
 It saith, it saith,—the ruler is a man,
 And man is mortal—that I knew before.
 To mar my course that knowledge I defy !
 Then, come what may, come whatsoever can,
 All ills in life, or woes beyond the grave,
 The die is cast, and I must on—on—on—
 Hence, chill forbodings ! terror-stirring qualms !
 Decision's blight ! Ambition ! thou alone,
 Fill up the mighty compass of my hopes
 And stamp the grand climacteric of my fate !
 Form me a perfect renegade, in this,
 To stand absolv'd of every human tie,
 And be stone-dead to pity, or remorse—
 Avaunt ! away ! uneasy whispers, down !
 Conquest my cry, be greatness my reward !”

OUTLINES OF PERIODICAL LITERATURE,
RELATING TO THE NATURAL SCIENCES & PHILOSOPHY.

(Continued from Vol. 9, page 356, of this Journal).

THESE "Outlines," on the present occasion, are necessarily extended so as to embrace the Periodical Literature of four months, including the last for MDCCCXXXVIII. They commence with

The London and Edinburgh Philosophical Magazine and Journal of Science; conducted by Sir David Brewster, F.R.S. Richard Taylor, F.G.S. and Richard Phillips, F.R.S. 8vo. London, 1838-9.

DECEMBER.—Here, for a first article, you meet with a concise experimental paper by Dr. Jacobi on the galvanic spark. Professor Johnston then adduces remarks on some apparent exceptions to the law that like crystalline forms indicate like chemical formulæ: his object, in other words, is to examine certain cases of isomorphous coincidence between substances of which the chemical formulæ, according to received views, are wholly irreconcilable; and, in an elaborate table, he arranges all the cases which have hitherto come to his knowledge. In an eleventh series of his experimental researches in electricity, Dr. Faraday treats of specific induction or specific inductive capacity; and his subjects are, shell-lac, glass, sulphur, spermaceti, rectified oil of turpentine, naphtha, rare and dense air and the different gases, with a summary on the nature of inductive action. Mr. Grove describes a new voltaic combination, which, he expects, may possibly throw some light upon the organization of the torpedo: his main object is, to direct attention to the porous filter as likely to form an important element in the analysis of the voltaic trough. A paper, by Mr. Nevins, on the reduction of the chlorides of mercury when mixed with organic substances, is followed by Mr. Craig's notes on the process for obtaining bichromate of the perchloride of chrome, as viewed under the microscope; by Mr. Gregory's on the experiments detailed in Mr. Waldie's paper on combustion and flame; by Z. Y.'s on a certain difficulty connected with the demonstration of Euclid, B. 1, prob. 29; and by Mr. Gassiot's on a remarkable difference in the heat attained by the electrodes of a powerful constant battery. Dr. Kane's analytical investigation into the composition of essential oils, embraces those of rosemary, marjoram, peppermint, penny-royal, spearmint, and lavender, with explanatory remarks; and Prof. Sylvester concludes his observations on the motion and rest of fluids, with the statement—that he looks for the true explanation of the phenomena of capillary attraction "to the non-applicability of the equations for free fluids to the case of fluids confined at the boundaries, and to an independent investigation upon the minimum of principle for this class of problems." An original theorem of the same writer's on an extension of Sir John Wilson's theorem to all numbers whatever, carries you to the Proceedings of the Royal Society; and, from these, to the notes of intelligence and miscellaneous articles. Here, you have an account of xyloidine and its

properties, by M. Pelouze; M. Lassaigne's remarks on the determination of iodine and kelp; MM. Matteucci and Schœnbein on the polarization of platinum electrodes; Mr. Henry on sulphocyanide of potassium as a test for strychnia; M. Regnault on pectic acid, and the pectates of potash, soda, and ammonia; M. Brunner on the decomposition of siliceous minerals by means of hydrofluoric acid, and on the separation of compounds of the oxides of antimony and lead; Prof. Johnston on the analysis of the resins; M. Melly on the composition of comptonite, which he proves to be a hydrous silicate of alumina, lime and soda; M. Dumas on the action of chlorine on acetic acid, and M. Masson on the action of chloride of zinc on alcohol; M. Pfaff on the combination of azote with metals; M. Boudet on the solubility of binoxide of mercury in water; MM. Wœhler and Liebig on the decomposition of lithic acid by nitric acid; MM. Cap and Henri on lactate of urea; Mr. Griffith on the existence of caoutchouc in plants; and Dr. Natterer on the Lepidosiren *paradoxa*, which he describes before leaving you to examine the meteorological observations and tables.

JANUARY, MDCCCXXXIX.—First in the commencing volume, Dr. Turner's chemical examination of the Fire-Damp from coal-mines, affords results that may prove conducive to the safety of miners: it includes a tabular view of the composition of all the gases which have been analysed. With meteorological observations instituted in Colombia between 1820 and 1830, Col. Wright combines much various information: he distributes the temperatures through the vast territory of Colombia into five zones—the level of the ocean; the small elevations, from five hundred to fifteen hundred feet; the slopes of the Cordillera, from two thousand to seven thousand feet; the table-lands, from eight thousand to ten thousand feet; and the *paramos*, from eleven thousand feet to the limit of perpetual snow. Mr. Talbot's article on "Analytic Crystals" is illustrated by six beautiful coloured figures: he discovered this class of crystals, during a course of experiments with his polarizing microscope. J. S. W. propounds some remarks on certain conditions under which light is received from the heavenly bodies: he is desirous of seeing this question put to extensive scientific investigation. An account of a remarkable heat observed in masses of brine kept in large reservoirs, is furnished by Mr. Prinsep, with details of ten experiments: he acknowledges his inability to offer any explanation of the cause of this heat. Sir J. Herschel describes a chemical examination of a specimen of native iron from S. Africa: and, from the results, he judges that this specimen has equal claims to a meteoric origin with any other masses of native nickeliferous iron. Successively come six articles, a supplementary note to Dr. Faraday's researches in electricity; Mr. Ivory's remarks on the equilibrium of fluids; Mr. Birt's observations on shooting stars, with his table of the constellations arranged according to their relative positions in the heavens. Prof. Schœnbein's letter on the voltaic polarization of certain solid and fluid substances. Mr. Phillips's *desiderata* with respect to the formulæ representing *Chabasie*; and Prof. Sylvester's note on his paper inserted in the preceding number. Of the geological, royal and astronomical societies, the reported "Proceedings" are interesting and valuable: they are followed by eight miscellaneous articles intitled, silicates of soda, respiration of plants, valerianic ether, action of sulphate of ammonia on glass, aconitic acid, separation of copper from arsenic, method of distinguishing strontian from barytes and lime, and insti-

ments for the alleviation of deafness. Then comes the closing meteorological tables and observations.

FEBRUARY.—For the three first articles of this month's publication, you have Major Sabine's comparison of the magnetic lines of no dip and of least intensity, represented on a map; Mr. Watkins on the evolution of heat by thermo-electricity; and M. Leise's preliminary notice of some experiments on the action of acetone on the bichloride of platinum; he obtains a considerable quantity of a substance which he calls *Metacechlorplatin*, by keeping for twenty-four hours a mixture of acetone with the bichloride in a well-closed vessel. Three additional numbers of Professor Johnston's experiments on the composition of mineral substances of organic origin, relate to his analyses of the mineral resins—the Highgate resin or fossil copal; resin from settling stones; and berengelite: he also treats of the origin of the fossil copal, retinaspalt, middletonite, guayaquillite and berengelite. Another portion of Col. Wright's meteorological observations during a residence in Colombia between the years 1820 and 1830, is followed by Mr. Hopkins' extended observations on Malaria, with suggestions for ascertaining its nature. Prof. Forbes communicates his curious experiments on the colour of steam under certain circumstances; and then come three papers on particular demonstration of Euclid: Mr. Drury's notice of the electrical excitation of a leather strap, connecting the drums of a worsted mill; and Mr. Grove's suggestions on the voltaic series and the combination of gases by platinum. After the proceedings of the Royal, Geological, and Cambridge Philosophical societies, there are eight miscellanies and articles of intelligence, with the titles—equivalent of carbon and composition of naphthalin; composition of wax; amilen derived from oil of potatoes; action of chlorine of zinc upon alcohol; action of spongy platina; architectural lectures; French expedition of discovery; and a curious habit of earth-worms. At the end, come the meteorological tables and observations, from which you pass to

THE SUPPLEMENTARY NUMBER, containing a general index to the Philosophical Magazine from MDCCCXXXII to MDCCCXXXVIII, with a title-page, index, and table of contents, for the thirteenth volume thus completed.

MARCH.—Additional facts on the general magnetic relations and characters of the metals, are here adduced by Prof. Faraday: in his experiments, sixteen metals and twenty-two metallic combinations, when cooled to 112° F. gave no indications of any magnetic power. Dr. Kane's notice on the theory of the æthers is followed by a continuation of Mr. Tovey's researches in the undulatory theory of light, on the elliptical polarization produced by quartz, and by Dr. Winn's communication on a remarkable property of arteries, considered as a cause of animal heat. Mr. Grooby then illustrates the passage of the moon across the Pleiades in March, August, September, and November, MDCCCXXXIX, with remarks and a chart. In a further portion of his meteorological observations in Colombia, Col. Wright considers the method of measuring heights by boiling water. Three concise articles next appear,—these are, Mr. Webster's letter on the colour of steam: Mr. Cooper's remarks on hydrocyanic acid; and Prof. Silvester's investigation on the motion and rest of rigid bodies. An interesting paper of Sir David Brewster's on the colours of mixed plates, unfolds his experiments on this curious subject; and, last in the list of originals, you have some account by Mr. Talbot of the art of photogenic drawing, and of the processes employed in its prac-

tical applications: this discovery of Mr. Talbot's seems calculated to secure the highest and most important results. For proceedings of Learned Societies, those of the royal, geological, and astronomical, are recorded; and then come fifteen miscellaneous, chiefly chemical, articles, which are succeeded by the meteorological observations and table.

The Magazine of Natural History, and Journal of Zoology, Botany, Mineralogy, Geology, and Meteorology, conducted by Edward Charlesworth, F.G.S. 8vo, London, 1838-9.

No. XXIV, DECEMBER, 1838.—Mr. Waterhouse introduces this month's publication with a beautifully coloured figure and description of the *Goliathus torquatus*, a beetle belonging to the cetonidæan family: his specimen was brought from Sierra Leone—where the insect is extremely scarce. In an English version, are M. de Blainville's doubts respecting the class, family and genus to which the fossil bones found at Stonesfield and designated *Didelphis prevotii* and *D. bucklandii*, should be referred: M. de B. who appears to be a doubt-full philosopher, has recently promulgated "new doubts" concerning the same question: his paper is copious and elaborate. Dr. Drummond adds to his notices of Irish Entozoa, a description of the *Anthocephalus paradoxus*, and he illustrates his subject with six very distinct and useful figures. A descriptive list of *Rhysodes* is given by Mr. Newman, and he notes the ranges of its geographical distribution: he characterises eight species—the *Rhysodes strabus*, *R. aratus*, *R. exaratus*, *R. liratus*, *R. costatus*, *R. sculpitilis*, *R. guildingii*, and *R. monilis*. In a communication to the editor, Mr. Bradley notes his observations on the habits of the electric eel. Dr. Weissenborn gives an account of the transformation of oats into rye, as a fact attested by experiment; and, with Mr. Ward's notice of the examination of candidates for the botanical prizes proposed by the apothecaries' society, the department for original articles is concluded. Mr. Bowerbank's observations on the lower freshwater formation in the Isle of Wight; Mr. Wetherell's note on the Highgate resin; Dr. Rees' remarks on the existence of flint-beds in the upper chalk formation; Mr. Walker's remark on the geography of insects; and Dr. Weissenborn's of a new German scientific institution, constitute the "short communications," and bring the volume for MDCCCXXXVIII to a respectable termination.

No. XXV, JANUARY, 1839.—Mr. Charlesworth commences the new year and the new volume of his excellent periodical with an English version of M. Valenciennes' observations on the fossil jaws from the oolitic beds at Stonesfield, named *Didelphis prevotii* and *D. bucklandii*; and, for reasons assigned in the article, he regards these bones as having belonged to mammiferous animals very nearly approaching the *Didelphis*, but of a distinct genus: he prefers the terms *Thylacotherium prevotii* and *T. bucklandii* as their scientific appellations. Mr. Lee contributes an admirable article with the title, "notice of undescribed zoophytes from the Yorkshire chalk, and his descriptions are illustrated by fifteen well executed diagrams: his subjects are—the *Siphonia clava*, *Si. anguilla*, *Spongia catablastes*, *Sp. fastrigiata*, *Sp. sepiaformis*, *Sp. ampulla*, *Sp. spinosa*, and *Udotea cancellata*. Observations on the Lamellicornis

of Olivier by Mr. Hope, consist of a tabular view of one hundred and twenty-one species of *Melolontha*, with the "country and arrangement of authors," and of critical and descriptive remarks on fifty-six species of *Melolontha*—the *alba*, *commersonii*, *serrata*, *villosa*, *alopez*, *solstitialis*, *pini*, *oblonga*, *cornuta*, *glauca*, *lutea*, *elongata*, *bimaculata*, *femoralis*, *cærulea*, *cæruleocephala*, *bipunctata*, *globator*, *rauca*, *rufa*, *errans*, *innuba*, *nitidula*, *aulica*, *gibba*, *versicolor*, *variabilis*, *zebra*, *vittata*, *vulpes*, *crinita*, *proboscidea*, *limbata*, *praticola*, *regia*, *marginata*, *atomaria*, *crassipes*, *podagricus*, *gonagra*, *longipes*, *monticola*, *varians*, *hæmorrhoidalis*, *picipes*, *ignea* and *12-punctata*. A description of two new beetles belonging to MacLeay's *Cetoniidæan* family, with good illustrative figures, is given by Mr. White, who proposes that *Platygeoma macleayi* and *Eudibella morgani* may be accepted as the distinctive appellations of his new insects. Mr. Strickland confirms the claims of *Ardea alba*, the great egret or white heron, to be considered a British bird. Remarks on the synonymy of the Perlites, with brief characters of the old, and of a few new species, are advanced concisely by Mr. Newman; he then treats formally of *Eusthenia thalia*, *E. spectabilis*, *Pteronarcys regalis*, *P. biloba*, *P. proteus*, *Perla abnormis*, *P. lycorias*, *P. xanthemes*, *P. bicaudata*, *P. marginata*, *P. cephalotes* and *P. cymodoce*. In the shape of a critical review, you have an account of that portion of Dr. Smith's *Illustrations of the Zoology of South Africa*; and, in this article, the attention of naturalists is directed to the *Cetoniidæan* group of insects. Last of all, for January, an extract from Prof. Grant's observations on the footmarks of *Chirotherium* lately detected in the Stourton stone-quarries, instructively occupies the department of scientific intelligence.

No. XXVI, FEBRUARY.—M. de Blainville promulgates, through an English version, his "New Doubts" relating to the *Didelphis* of Stonesfield, and persists in retaining for it the name *Amphitherium* which he originally proposed: he regrets that the scientific conductors of the journal called "the *Athenæum*" should have embarrassed science by facetiously proposing the name "*Botheratiotherium*" for the *Didelphis* of the oolite, as a means of evincing his impartiality! From Mr. Bean's pen, you are provided with a catalogue of the fossils found in the Cornbrash Limestone of Scarborough, with figures and descriptions of some of the undescribed species—as, the *Tubipora incrustans*, *Amphidesma decussatum*, *Sanguinolaria parvula*, *Cardium globosum*, *Isocardia triangularis*, *Anomia semistriata*, *Bulla undulata* and *Littorina punctura*: his figures are beautifully distinct and elegant. Dr. Drummond's notices of Irish Entozoa, on this occasion, extend to the *Echinorhynchus hystrix* and *E. filicollis*, which are admirably figured and described with singular perspicuity. With a few observations on some of the natural objects in the neighbourhood of Cheadle, Mr. Carter adds his mite to the information chiefly on local botany: he discovered the *Valeriana pyrenaica* growing in tolerable abundance, by the side of a stream flowing along the bosom of a ravine, near the village of Oakamoor. Mr. Blyth proceeds with his analytic descriptions of the groups of birds composing the order *Streptores*: his article is excellent, and embraces the *ZYGODACTYLI* *Leviostres*, consisting of the *Rhampastylidæ* or the toucan family, and the *Musophagidæ* or the tou-raco and coly family. With observations on his three new genera, *Isogenus*, *Chloroperla* and *Leptoperla*, the monograph of Mr. Newman on the synonymy of the PERLITES with specific characters, is concluded: his species are Iso-

genus *ligea*, *I. nubecula*, *I. frontalis*, *I. micromphala*, *I. infuscatus*, *I. drymo* and *I. clio*; *Chloroperla spino*, *C. grammatica*, *C. transmarina*, *C. clymene*, *C. ephyre*, *C. flava*, *C. apicalis*, *C. cydippe*, *C. bifrons* and *C. opis*; *Leptoperla beroë*, a slender and very elegant insect from Van Dieman's Land. A course of observations on the RODENTIA is here commenced by Mr. Waterhouse, with a view to point out the groups, as indicated by the structure of the Crania in this order of mammals: he regards the zygomatic arch and ant-orbital foramen as affording the most constant characters: he arranges the order into three sections, and names them, *Murina*, *Hystericina* and *Leporina*; and, in the present communication, under the first section, he treats of the Sciuridæ as a family, and illustrates its characters with five graphic outlines. For short communications, there are—a note on the *Amphicomma vulpina* a new genus of the lamellicorn group, from W. Florida; a statement on some fossil cetacean remains obtained from the yellow marl of Herne Bay, in Kent; a note on the argonaut; and a set of ornithological remarks recommending the occasional publication of lists of birds shot in different parts of the kingdom, so as to afford a sort of index to collectors: the writer exemplifies his suggestion by enumerating the chief rarities which have come under his own observation.

No. XXVII, MARCH.—Here, a lady contributes the first article: it is furnished by "Madame Jeannette Power," and consists of physiological observations and experiments on the "Poulp of the Argonaut:" the ingenious female naturalist has assured herself that this Mollusc is the constructor of the shell which it inhabits. Mr. Thompson and Mr. Patterson relate their important observations on Snow Crystals, of which nineteen different forms are enumerated; and, for the next communication, you have the first portion of Dr. Bachman's monograph of the genus *Sciurus*, with descriptions of new species and their varieties in N. America: here, the doctor treats chiefly of *S. capistratus*, the fox squirrel, its specific characters, habits and geographical distribution. Another section next appears, of Mr. Garner's essay on the anatomy of the Lamellibranchiate Conchiferous Animals: in this, he notes what is known of the chemical composition of the shells of Bivalves, makes some remarks on the articulation of the valves, and then describes the muscular and nervous systems of the shell-occupying tribes. In his observations on the history and classification of the Marsupial quadrupeds of New Holland, Mr. Ogilby professes to investigate the relations and establish the zoological characters of these interesting animals: his essay abounds with facts and inductions peculiarly deserving the best consideration of naturalists. Two lists of vegetables are furnished by Mr. Pamplin in his remarks on the Botany of Selborne: the first includes the sixteen plants mentioned by Mr. White, "the amiable natural historian of that truly delightful spot:" the other is a catalogue of thirty rarer species of indigenous plants growing near Selborne: the district, he adds, is rich in willows and ferns, which flourish in the deep shady lanes, in wonderful variety and beauty. Mr. Doubleday publishes, in a concise and eulogical article, a complete list of Mr. Thomas Say's entomological writings: twenty-nine of these, with their exact titles and dates of publication, are enumerated. From the pen of Dr. Clarke, you have curious and valuable remarks on *Perdrix rubra* the red-legged partridge, with a copious synonymy. The "Short Communications" contain accounts of a fall of meteorolites and of a singular procession of caterpillars,

a description of the *Lamia lucia* as a new species, and a notice respecting the London Botanical Society, which appears to possess 18,592 specimens of British, and 10,000 of foreign plants: the Council have published a sheet containing the whole of De Candolle's orders and genera, and the Linnæan classes and orders, to answer the purpose of arranging British collections.

Annals of Natural History; or Magazine of Zoology, Botany, and Geology; conducted by Sir W. Jardine, Bart., P. J. Selby, Esq., Dr. Johnson, Sir W. J. Hooker, and Richard Taylor, F.L.S. 8vo. London, 1838, with Graphic Illustrations.

NO. X. DECEMBER, MDCCCXXXVIII.—First on the list of communications for this number, you have remarks of Mr. Hancock's on the Greenland and Iceland falcons, shewing that they are different species: under the distinctive names, *Falco islandicus* and *F. grœnlandicus*, he details their specific characters and synonyms. In an article on the land and fresh-water Mollusca of Algiers and Bongia, obtained in May, 1837, Mr. Forbes describes forty-five species, and he believes that several of them were previously undescribed. His collection includes the *Limax cinereus* and two other species to which he has not given names; *Helix aspersa*, *H. melanostoma*, *H. naticoides*, *H. lactea*, *H. constantina*, *H. candidissima*, *H. otthiana*, *H. terverii*, *H. cœspitum*, *H. pisana*, *H. variabilis*, *H. pyramidator*, *H. conoides*, *H. conica*, *H. elegans*, *H. rozetti*, *H. lenticula*, *H. lucida*, *H. cellaria*, *H. apicina*, *H. roseo-tincta*, and a variety; *Bulimus decollatus*, *B. acutus*, *B. ventricosus*, *B. pupa*, and *B. terverii*, so denominated in honour of M. Terver, of Lyons, an eminent naturalist; *Achatina poireti*, *A. acicula* and *A. nitidissima*; *Succinea amphibia*; *Pupa umbilicata* and *P. granum*; *Cyclostoma sulcatum*; *Paludina acuta* and *P. dupoletiana*; *Ancylus fluviatilis*; *Physa contorta*; *Planorbis metiagensis* and *P. marginatus*; *Melanopsis buccinoidea*, and *Pisidium tumstenianum*. Mr. Schomburgk, the distinguished South American traveller, furnishes a valuable communication on the *Sarcorrhampus papa*, king of the vultures; and in this curious article, Mr. S. describes the Zoological characters and animal economy of this "most beautiful of the deformed family of the vultures," from attentive and extended observation. After a careful examination of numerous individuals in their native localities, Mr. Babington concludes that there are four distinct British species of the *Lotus*, which he distinguishes, by full permanent characters, as *L. corniculatus* and four varieties, *L. major*, two varieties, *L. angustissimus*, two varieties, and *L. hispidus*: each of his four species is aptly illustrated with small but distinct figures. Mr. Thompson proceeds with his observations on fishes, containing a notice of one species new to the British, and of others to the Irish Fauna; and, on the present occasion, his subjects are, the *Coregonus clupeoides* and *C. pollan* in a note, *Salmo ferox*, *Anguilla latirostris*, *Exocoëtus*, an unnamed species of flying fish, *Raniceps trifurcatus*, *Pleuronectes punctatus*, *Mustelus levis*, *M. hinnullus*. Mr. Hindmarsh's remarks on the wild cattle of Chillingham Park include a letter from Lord Tankerville on the same subject, with notes on the breed at Chartley and those of the ancient Caledonian forests. Next in course, come two papers from Mr. Gray; and in the *first*, he contributes brief

notes and two plates on some new or little known mammalia, as the *Bos brachyceros*, *B. pegasus*, *Pteroneura sanbachii*, *Viverra carcharias*, *Amphisorex pennantii* and *A. linneana*; in the second, he continues his catalogue of the slender-tongued Saurians, with descriptions of many new genera and species: in this list he indicates characteristically the *Scincus officinalis*, *Sphænopis sepsoides*, *Celestus striatus*, *Tachydosaurus rugosus*, *Egernia cunninghami*, *Tiliqua whitii*, *T. elegans*, *T. cyanura*, *T. chinensis*, *T. tæniolata*, *T. tabillardii*, *T. vanicoriensis*, *T. bistrigata*, *T. punctata*, *T. maculata*, *T. fasciata*, *T. carinata*, *T. subrufa*, *T. affinis*, *T. quinquestriata*, *T. napoleonis*, *T. nigrolutea*, *T. kingii*, *T. bibronii*, *T. capensis*, *T. uscensionis*, *T. tenuis*, *T. stodartii*, *T. vachelii*, *T. leucopsis*, *T. australis*, *T. buchanani*, *T. trilineata*, *T. occidua*, *T. similis*, *T. bellii*, *T. erythrocephala*, *T. ocellata*, *T. richardi*, *T. duperreyi*, *T. entrecaux*, *T. microcephala*, *T. ænea*, *T. albolabris*, *T. recvesii*, *T. sloanii*, *T. striata*, *T. jamaicensis*, *T. fernandi*, and *T. interrupto-punctata*. There is only one proceeding of the Zoological society, and for Miscellanies, you have Mr. Gray's observations on *Hapalotis albipes*, the New Holland Gerboa rat; on the *Lepidosiren paradoxa*, a new anomalous reptile; on the fur seal of commerce; and on the habits of *Arion ater*, the black slug: and Mr. Hancock's communication on the *Regulus modestus*, which he proves to be a British bird: the "December" closes with meteorological observations and tables.

No. XI, for JANUARY, MDCCCXXXIX.—Mr. Pictet opens the first number for the present year with a sort of eulogistic estimate of the writings of Goethe relative to natural history: these, it seems, had comparative anatomy, botany and geology for their object; but Mr. P. confines his observations to the first, as being the part which he can best appreciate. Notes on Shrews brought from Germany by Mr. Ogilby, including the description of an apparently new species, come from the hand of Mr. Jenyns: they are five in number—the *Sorex araneus*, *S. leueodon*, *S. tetragonurus*, *S. labiosus*, and *S. pygmæus*: the *Labiosus*, or full-lipped, is considered new, and the name bears reference to its most distinguishing peculiarity. After these notes, you have a description of two new Orchideous plants, by Prof. Hooker: these are, the *Pleurothallis aristata* and the *Stellis foliosa*: the specific characters are illustrated with figures. Continuing his catalogue of the slender-tongued Saurians, Mr. Gray describes the *Dasia olivacea*, *Aprasia pulchella*, *Herinia capensis*, *Riopa punctata*, *R. ruppellii*, *R. brongainvillii*, *Lygosoma abdominalis*, *L. australis*, *Chiamela lineata*, *C. duvancellii*, *Tetradactylus decresiensis*, *Ristella rurkii*, *Hagria rosmaerii*, *Seps tridactylus*, *S. vittata*, *S. multivirgatus*, *Siaphos æqualis*, *Ophiodes striatus*, *Anguis fragilis*, *Signana ottonis*, *Dorfia punctata*, *Microlepis undulata*, *Ablepharus panonicus*, *A. capreus*, *Gymnophthalmus lineata*, *Cryptoblepharus lesehnaultii*, *C. pœcilopleurus*, *Lerista lineata*, *Rhodona punctata*, *Soridia lineata*, *Nessia burtonii*, *Evesia monodactylus*, *Bipes anguineus*, *B. gronovii*, *Acontias meleagris*. Mr. Thompson furnishes an excellent historical article on the breeding of *Scolopax rusticola*, the woodcock, in Ireland, including valuable accessory observations. In a communication on the botany of the Channel Islands, Mr. C. C. Babington enumerates those plants which had not been noticed in that locality before 1838: their names are, *Ranunculus ophioglossifolius*, *Orchis laxiflora*, *Linaria pelisseriana*, *Myriophyllum alterniflorum*, *Polygala oxyptera*, *Ononis reclinata*, *Potamogeton plantagineus* and *Carex punctata*; he adds a list of five species found in these islands, but not found in Britain;

they were first gathered by himself, and are the *Neottia æstivalis*, *Sinapis incana*, *Mercurialis ambigua*, *Atriplex rosea*, and *Anthrolobium ebracteatum*: he states, that 760 flowering plants and ferns have been noticed in these islands, and that twenty of them have not as yet been gathered in Britain by her numerous practical botanists: Mr. B. is about to publish *Primitæ Floræ Sarnicæ*, and solicits information on the subject. Mr. Walker, on resuming his descriptions of the British Chalcidites, produces the characters of nine species, the *Cirr.....eyrrhus*, *C. mycerinus*, *C. adalia*, and three varieties, *C. orithyia*, with two varieties, *C. tachos*, *C. attalus* and ten varieties, *C. agathocles* with five varieties, *C. julis* and the *C. ilithyia*, which stands as the forty-fourth article on the list. Another addition to the Specimen of New Zealand Botany is contributed by Mr. Cunningham, and here he characterizes eleven species—the *Quintinia serrata* with an interesting foot-note, the *Weinmannia fuchsoides*, *W. sylvicola*, *Leiospermum racemosa*, *Ackama rosæfolia*, *Tillæa verticillaris*, *Mesembryanthemum australe*, *Tetragonia expansa*, *Passiflora tetrandra* and the *Sicyos anstralis*: from the precision with which the different habitates of the plants are particularized by Mr. C. his catalogue will greatly facilitate the researches of future naturalists. Under the title of Information respecting Botanical Travellers, you find that Dr. Steudel is successfully prosecuting the objects of his mission in Abyssinia, where he has already collected 50,000 dried specimens of plants, consisting of 600 species, many of which are new: that Dr. Brunner has returned to Berne from the Cape de Verd islands with a collection of 600 species of plants which he offers to the attention of botanists at forty shillings a hundred: and that Mr. Gardner is proceeding prosperously and zealously in his investigation of the Brazilian botany. Seven concise Bibliographical Notices bring you to the proceedings of the Royal, Linneæan, Wernerian, and Zoological societies. For Miscellanies, you have two extracts from Couch's Fauna of Cornwall—on the *Larus jacksonii*, a new species of gull, and on *Cyclopterus coronatus*, the coronated lump-fish, with sketches of the specific characters;—an intimation of the complete failure of the French expedition of discovery to the South Polar Seas;—and a notice, by Prof. Hooker, of a very remarkable state of *Viola lactea*, the cream-coloured violet. Last on the list, stand the monthly meteorological observations and tables.

No. XII.—This number of the Annals begins with Mr. Harvey's descriptions of two new species of a new genus of South African plants belonging to the natural order Rhizanthææ, with two illustrative plates: he suggests the term *Mystropetalon* for the appellation of the genus, from the spoon-shaped form of the segments of the perianth: the species are *M. thomii* and *polemanii*, and he gives distinct characters of these interesting plants. In Mr. Newman's paper on the synonymy of *Passandra*, he characterises all the old and a few new species.—*P. sexstriati*, *P. columbus* and *P. fasciata*; *Hectarthrum curtipes*, *H. gigas*, *H. brevifossum*, *H. trigeminum*, *H. heros*, *H. bistratum*, *H. gemelliparum*, *H. semifuscum* and *H. rusipenne*; *Catogenus carinatus*, *C. castaneus*, *C. rufus*, and *C. puncticollis*. Mr. Giraud's observations on the existence of a third Tunic, together with certain other peculiarities, in the structure of Pollen, with a graphic illustration, exhibiting fourteen well-sketched figures. Mr. Thompson makes a valuable communication on the British species of the genus *Monochirus*; on a minute fish allied to the *Ciliata glauca* and *Gadus argenteolus*; on the identity of *Trigla cuculus* with

T. gurnardus, with remarks on two species of *Gobius*; on the identity of *Crenilabrus multidentatus* with *Labrus pusillus*; and on the Irish *Coregonus clupeioides* and *C. pollan*, with exact figures. The sixth section of Dr. Johnston's "*Miscellanea Zoologica*" contains his observations on the British Aphroditæ: his subjects are, *Aphrodita aculeata*, *Polynoë squamata*, *P. cirrata*, *P. impar*, and *P. viridis*, *Pholoë inornata* and *Sigalion boa*, with three plates, on which the chief characteristics of each animal are represented on three plates with numerous figures. Commencing with No. 37 of the plants collected by Mr. Schomburgk in British Guiana, Mr. Bentham enumerates the *Leeria nutans*, *Porophyllum latifolium*, *Baccharis erioptera*, *Schultesia stenophylla*, *S. brachyptera*, *Contoubea spicata*, *C. reflexa*, *Schuebleria tenella*, *S. coarctata*, *Lisianthus uliginosus*, *L. chelonoides*, *Irlbachia cærulescens*, *Bacopa aquatica*, *Herpestris sessiliflora*, *Beyrichia ocimoides*, *Conobea aquatica*, *Vandellia crustacea*, *V. diffusa*, *Torenia parviflora*, *Buchnera palustris*, *B. lavandulacea*, *Scoparia dulcis*, *Gerardia hispidula*, *Glossostyles aspera*, *Hyp-tis recurvata*, *H. paludosa*, *H. lantanæfolia*, *H. brevipes*, *H. parkeri*, *H. pectinata*, *Marsypianthus hypnoides*, *Cryptocalyx nepetæfolia*, *Lippia microphylla*, *Lantana salvæfolia*, *L. annua*, *Camara titiæfolia*, *Stachytarpheta elatior*, *S. cajenensis*, *Tamonea spicata*, *Petræa macrostachya*, *Pyrostoma ternatum*, *Vitex capitata*, *V. umbrosa*, *Egiphila arborescens*, *E. laxiflora*, *E. salutaris*, *Clerodendron fragrans*, *Amasonia erecta*, and *A. hirta*. Prof. Fries' account of a metamorphosis observed in *Syngnathus tumbriciformis*, the small pipe-fish, with two figures, is a curious contribution to ichthyology. The information respecting botanical travellers brings you to the end of this month's publication, and is completed in

NO. XIII. A SUPPLEMENTARY NUMBER. Mr. Gardner relates his proceedings at Pernambuco, and Mr. Harvey gives his from Southern Africa; under this head of "Information," which precedes three bibliographical notices, the proceedings of the Zoological and Wernerian Societies, and six miscellanies intitled, on the fur-seal of commerce; a curious habit of earth-worms; the occurrence of *Atriplex rosea* on most of the English coasts; the animal of *Modiolus discrepans*; the *Vespertilio leisleri*; and a note on the botany of the Channel Islands. The volume then finishes with Meteorological observations and tables, and nine plates with figures for illustrations.

NO. XIV.—Professor Morren introduces this month's contributions to natural history with a valuable essay on the "Production of Vanilla in Europe;" and his observations are divided into five sections, with the titles—of the species of Vanilla plant which produces the long and fine pods of commerce; an abstract of the history of the *Vanilla planifolia*, bearing large odoriferous fruits; a short digression on the introduction of Vanilla into domestic use; a detailed description of its cultivation; and remarks on the structure of this plant: the professor is certain that the *V. planifolia* is the same plant which is generally cultivated on the continent, and has produced at Liège an abundant crop of odorous and delicious fruit. Mr. Beyrich's memoir on the *Goniatites* found in the Transition Formations of the Rhine, exhibits the geological descriptions of *Ammonites subnautilinus*, *A. lateseptatus*, *A. danenbergi*, *A. compressus*, *A. retrorsus* and *A. becheri*, with illustrative figures. In a brief article on some new and rare Indian plants, Dr. Arnott describes the *Schirostigma hirsutum*, *Acranthera ceylanica*, *Neurocalyx wightii*, *W. ceylanicus*; he characterises the *Argosternma courtallense*, in a foot-note. Ten

Reptiles and eighty-two Fishes are noted in a new portion of Mr. Eyton's attempt to ascertain the Fauna of Shropshire and N. Wales; and, in an additional piece of his specimen of the New Zealand botany, Mr. Cunningham particularises twenty-seven species, making 552 the number of his catalogue. From Mr. Thomson's pen, there is an interesting paper on an apparently undescribed species of Lepadogaster, which he denominates *L. cephalus*, and on the *Gobius minutus* of Muller, and *Cyclopterus minutus* of Pallas, which the writer considers as the young of *Cyclopterus lumpus*, with much appearance of certainty. Over five bibliographical notices, you pass to the proceedings of the Linnæan, Geological and Zoological Societies, and of the Royal Irish Academy. For Miscellanies, there is a note on the genus *Syngnathus*; then comes a report on the influence of native magnesia on the germination, vegetation and fructification of vegetables, and then the meteorological tables and observations.



The Naturalist; illustrative of the Animal, Vegetable, and Mineral Kingdoms. with engravings; edited by Neville Wood, Esquire; royal 8vo. London, 1838-9.

No. XXV, OCTOBER.—Mr. Drosier takes the precedence in this month's publication, with "interesting notes" on the habits of the *Gasterosteus trachurus*, or roughtailed tickleback, in Russia; and, next in course, come Mr. Buist's observations on certain singular phenomena connected with the deposition of mind in the river Tay. In a conversational sort of speculation on the abuse of prints in works of natural history, we are edified by an exposition of the notions of Mr. Rylands on that recondite subject. The next seven pages of his own periodical are occupied by a characteristic exhibition of Mr. Wood's sentences under the words "Gould's Birds of Europe;" and this is followed by Mr. Hall's on the habits and peculiarities of British plants, and on the derivations of their Latin names. By way of "correspondence," you have Mr. Bensted addressing the "Editor of the Naturalist" on the destruction of game by rats, on the necessity of freedom on scientific inquiry, and on the destruction of foliage by insects; and then you arrive at the Editor's affable reply, wherein he professes the magnanimity of advocating the cause of truth apart from all mercenary considerations! For a "chapter of criticism," there are an apparent confirmation of Mr. Buist's statement that *Columba palumbus*, the ring-pigeon, eats the bulbs of turnips, and Mr. Rilands' question "Is *Papilio podalirius* a British insect," with his avowal that he feels inclined to retain himself as special pleader in favour of its claims to be ranked as one of the British butterflies. From this instructive chapter, you pass on to a memoir of Dr. Latham, whom all the world knew "almost exclusively as an ornithologist:" this remarkably modest and philosophical compilation is enriched with a portrait of the Doctor, and with an epistle indited by him in the *ninety-sixth* year of his age, for the seeming purpose of saying that the book on the "British Song Birds" is a very interesting book, and particularly adapted to charm as well as to enlarge young minds! The section composed of some of the Proceedings of the British Association, and of the geological, royal, horticultural, and entomo-

logical societies, precedes those which are denominated extracts from foreign journals, reviews of new publications, literary intelligence, chapter of miscellanies and obituary—all deserving their due meed of praise from enlightened naturalists.

XXVI, NOVEMBER.—First here comes the first epistle of Edwin Lees, F. G. S. to Neville Wood, Esq. on local occurrences in natural history: this lucubration will furnish the phrenologist with more than one of those facts which are not fancies. Ranking next after the first of Mr. L.'s letters, stands a tale about toes by Mr. Allis, who intitules it—on the toes of the African ostrich, and the number of phalanges on the toes of other birds; and then Mr. Pigott appears with his notes on the domestic habits of the dormouse. Mr. Rylands propounds some observations on the classification of the Adephagous insects, and the arrangement adopted by him will secure the attention of “practical naturalists,” but it may be seized as a confirmatory repudiation of their shallow impudence, who effect to despise classical learning. A voyage across the North and Baltic seas, by Mr. Drosier, transports you to the “Correspondence” on a venerable elm, which is well figured, on the spring of 1838, and on a supposed variety of the blind-worm. The British Association's zoological and botanical “Proceedings” occupy a respectable portion of the journal; they are followed by a botanical “proceeding” of the Rochdale literary and philosophical society; and this No. closes with a brief “chapter of miscellanies” in zoology, botany, and geology.

XXVII, DECEMBER.—Mr. Buist's natural history of the *Polyommatus Artaxerxes*, confers on this number an agreeable and entertaining introduction: the insect is peculiar to the Scottish division of our island, and Mr. B. distinguishes the localities frequented by the “beautiful little Artaxerxes,” adding the specific characters by which it may be known. There stands next an account of a visit to the British Association at Newcastle, by a member, who here most glibly pours forth a splenetic and presumptuous effusion. From the effects of this, however, you may be relieved by Mr. Wood's “most candid and praise-worthy” analysis of Gould's Birds of Europe, among which the facetious “practical naturalist” invents opportunities of practising his characteristic gambols. Mr. Lankester follows his friend with the conclusion of remarks on the general structure and habits of invertebrate animals, with poetical decorations; and, in his train, Mr. Hall arrives with another of his pieces on the habits and peculiarities of British plants, and on the derivations of their Latin names. In a sketch and picture for the “Naturalist's Literary Portrait Gallery,” Dr. Bevan is beautifully eulogized, and his “Honey Bee” is sweetly lauded as a most perfect and philosophical manifestation of “apiarian lore;” and this brings you to the “correspondence” between two of his correspondents and the editor, who, as usual, is abundantly complaisant: the subjects are brief and becoming—birds' nests and books on natural history. Next, there are notes for proceedings of eight natural history societies, with twelve little “extracts from foreign periodicals;” and forthwith, over the “reviews of new publications,” you pass to the “chapter of miscellanies,” which bring the Naturalist to the conclusion of MDCCCXXXVIII.

XXVIII, JANUARY.—Dr. Hibbert has given value to this number by his notes and figures concerning the *Mucor hyphænes*, a new parasitic plant,

found growing on the fruit of *Crucifera thebaica*, or *dowm*, the Thebaic palm, in Upper Egypt: it is characterized in an additional note by Mr. Berkeley to the editor. In a longish outline of the comparative structure of the skeletons of zoophytes, Mr. Wright produces a respectable display of "Greek and Latin" lore—the much-despised "Greek and Latin" lore! Then you have a page on a gigantic fossil fucus discovered in the new red sandstone at Woodside, in the river Mersey, from the pen of Mr. Duyer; then two pages from Mr. Hall, under the title, botanical notes, principally from the herbarium of the Liverpool botanic gardens; and then comes one of the sketches which Mr. Wood denominates a review of Gould's Birds of Europe. Mr. Hall's compilation on the habits and peculiarities of British plants, and on the derivation of their Latin names, is continued, and conducts you to the "correspondence," which is made up of a complaint by Mr. Hall, connected with "the departure of swallows in 1838;" and of seven samples of gossiping, addressed to the editor by Mr. Pigott, without the "use of apologies." The "chapter of criticism" comprizes a lumpish tissue of fantastical and dogmatic jargon "on the medium of mental power in man and all other animals;" and a query respecting Bohler's "*Lichenes Botanici*," to which the editor "anticipates the reply." The proceedings of seven societies—the zoological, medico-botanical, botanical, Linnæan, Worcester natural history, Liverpool royal, and the St. Andrew's literary and philosophical—are compendiously noted; and over the reviews of new publications and literary intelligence, you may advance to the chapter of miscellanies, and be amused with a medley of extracts from the pages of obsolete newspapers.

BOOKS RECEIVED.

DR. JONES' Lecture on the Study of the Greek and Latin Classics.—MR. SMART'S Beginnings of a New School of Metaphysics.—MR. JACOB JONES' "Cathedral Bell," a tragedy.—MR. JACOB JONES' "Spartacus, an Historical Tragedy."—Annals of Natural History, for December, January, February, and March.—Philosophical Magazine, for December, January, February, and March.—Magazine of Natural History, for December, January, February and March.—Naturalist for October, November, December, and January.—British and Foreign Medical Review, by JOHN FORBES, M.D., F.R.S. and JOHN CONOLLY, M.D. for October and January.

METEOROLOGICAL REPORT.—NOVEMBER.

Philosophical Institution, Birmingham.

Nov.	9 o'clk, a.m.		3 o'clk, p.m.		Dew Point,		External Thermometers,		Rain in Inches, read off 9 a.m.	Direction of wind at 9 a.m.	Remarks.
	Bar.	Ther.	Bar.	Ther.	deg. Fab.	3 p.m.	Fahrenheit.	Self-register.			
1	28.92	48.0	28.83	49.0	43.5	41.0	47.5	42.0	.070	S.S.W.	Cloudy a.m.; a hail storm $\frac{1}{2}$ before 1 p.m.; a fine evening.
2	28.77	45.0	28.72	45.0	39.0	43.5	43.0	36.0	.035	S.S.W.	Fair 9 a.m.; rain towards 11 a.m.; continuing with little intermission all day.
3	28.93	43.0	28.74	44.0	38.0	43.0	43.0	34.0	.150	S.	Clouded a.m.; rain p.m.
4	28.34	45.5	28.34	49.0	44.0	41.0	47.0	41.5	.210	S.S.E.	Clouded, but fair, a.m.; rain p.m.; at $\frac{1}{2}$ past 3 p.m. the wind changed from [S. to N.W., and immediately it began to rain.
5	28.71	47.5	28.84	49.0	44.0	45.0	44.0	42.5	.125	W.N.W.	Clouded, but fair.
6	29.7	46.0	29.66	48.5	38.0	43.5	47.0	34.0	.505	W.S.W.	A fine morning; fair all day; heavy rain at night.
7	28.88	51.0	28.97	53.0	52.0	51.0	55.0	44.5	.360	S.S.E.	Fair a.m.; much wind from the S.E., greatest force 11 $\frac{1}{2}$ lbs. at 3 $\frac{1}{2}$ hrs. p.m.; [heavy rain at half past 4 p.m.
8	28.93	49.0	28.88	51.0	43.0	43.5	47.5	44.0	.150	S.S.E.	Very fair.
9	29.17	45.0	29.22	45.5	41.5	39.0	41.5	38.5	.015	S.W.	Overcast 9 a.m.; very fair.
10	29.64	43.0	29.69	45.0	35.0	35.5	34.0	39.0	.030	S.S.E.	Overcast a.m.; rain p.m.
11	29.66	41.0	29.73	43.0	33.0	35.0	35.5	31.5	.030	S.S.E.	Misty 9 a.m.; very fair.
12	29.66	41.0	29.73	43.0	33.0	35.0	35.5	30.5	.030	N.W.	A hoar frost; very fair all day.
13	29.91	40.0	29.88	42.0	33.5	34.5	35.0	28.5	.425	W.N.W.	A hoar frost; very fair; a dense fog after sunset.
14	29.76	38.5	29.61	40.5	30.0	36.0	31.0	41.0	.390	N.	A hoar frost; overcast p.m.; foggy towards evening.
15	29.41	41.0	29.31	43.0	36.5	41.0	36.0	24.0	.005	E.	A dense mist, continuing all day.
16	29.2	43.5	29.18	46.0	35.0	42.0	38.0	45.0	.005	S.	A fine evening; hazy p.m.
17	29.22	46.0	29.26	47.5	40.0	39.0	42.0	40.0	.470	S.S.E.	Very fair, a.m.; overcast p.m.; rain from 4 $\frac{1}{2}$ hrs. a.m. of the 18th.
18	29.2	45.0	29.24	45.5	41.0	38.5	37.0	38.0	.270	N.N.E.	Rain, while the dew point was taken, at 9 a.m.; continuing all day.
19	29.16	44.0	29.05	43.5	37.5	36.5	37.0	34.5	.445	N.E.	Rain or sleet without intermission all day.
20	29.19	41.5	29.2	42.0	35.0	34.0	36.5	33.5	.240	E.	Overcast, but fair all day.
21	28.99	40.5	28.9	40.5	35.0	36.5	34.0	37.0	.055	N.	Overcast all day; rain at night.
22	28.81	42.0	28.77	43.0	37.0	38.0	41.0	34.5	.115	E.	Light rain, nearly all day.
23	29.04	44.0	29.06	44.0	41.5	38.0	38.0	41.0	.005	N.E.	Overcast, but fair.
24	29.64	41.5	29.2	41.0	32.0	33.0	34.0	31.5	.360	N.	Cloudy, all day.
25	29.47	39.0	29.47	40.5	29.5	37.0	33.0	30.0	.005	N.	Very fair.
26	29.36	37.0	29.35	37.0	26.0	24.0	31.5	32.5	.340	E.	Very fair.
27	28.92	34.0	28.7	35.5	31.0	32.5	32.0	27.0	.340	E.	Morning fair; p.m. rain and sleet with little intermission, a brisk E. wind
28	28.49	38.0	28.0	41.8	36.5	44.5	37.0	32.0	.350	E.	Stormy all day; much wind from the S.E., gr. force 23lbs. at $\frac{1}{4}$ past 2 a.m. (29)
29	27.97	45.5	28.0	48.0	41.5	45.0	48.0	45.0	.420	S.E.	Stormy all day; much wind from the S.E., greatest force, 21 $\frac{1}{2}$ lbs. at 20 min.
30	28.35	47.0	28.52	49.0	45.0	45.0	48.0	44.0	.390	S.S.W.	Fair a.m.; light rain p.m.; a beautiful evening. [past 2 p.m.

Mean 28.72 43.43 29.02 44.81 38.10 39.36 39.67 43.58 37.02 45.30 3.145 Sum.

Barometer.	9 a.m.		3 p.m.		Dew Point,	Height of the cistern of the barometer above the presumed mean level of the sea, 472ft. 6in.
	Bar.	Ther.	Bar.	Ther.		
Highest, 29.91	13th	29.88	13th	57.0	7th	52.0
Lowest, 27.95	29th	28.00	28.9	26.0	14th	26.0
					26th	24.0
					26th	24.0
					26th	24.0
					26th	24.0

DECEMBER.

Dec.	9 o'clock a.m.		3 o'clock, p.m.		Dew Point,		External Thermometers.		Rain in				
	Bar.	Ther.	Bar.	Ther.	deg of Fahren.	9 a.m., 3 p.m.	Fahrenheit.	Self-register read off	Inches, read off	Direction at 9 a.m.			
1	28.94	47.5	28.89	49.0	43.5	47.0	46.0	49.0	45.0	51.0	.010	S.	Fair a.m.; rain p.m.; a gale from the S.E., 7ths. force 5½ p.m.
2	28.81	50.0	28.84	51.0	47.0	48.0	48.0	49.0	47.0	50.0	.215	S.S.E.	Very fair a.m.; rain p.m.; gale continuing; force at 12 (noon), 9½ths.
3	28.85	47.5	28.85	49.0	44.0	43.0	44.0	46.5	41.5	50.0	.060	S.S.E.	Fair a.m.; light rain after.
4	28.81	46.0	29.06	47.0	41.5	40.0	41.0	45.0	40.0	46.0	.035	S.	Very fair; a slight deposition at night.
5	29.3	44.5	29.45	46.0	41.0	42.0	43.0	43.0	38.0	46.0	.005	W.N.W.	Very fair; a slight deposition at night.
6	29.7	43.0	29.7	43.5	33.5	39.0	33.5	41.5	32.0	42.5	.005	S.S.W.	Fair a.m.; rain after sunset.
7	29.74	46.0	29.77	46.5	41.0	43.0	45.0	46.0	41.0	46.0	.055	W.N.W.	Very fair.
8	29.86	42.5	29.88	44.0	36.0	37.0	36.0	41.5	35.0	43.5	.005	W.N.W.	Very fair.
9	29.88	40.5	29.88	40.0	34.5	36.5	34.5	38.5	33.0	39.5		W.N.W.	A dense fog, continuing all day.
10	29.73	39.5	29.69	40.5	34.0	37.0	34.5	38.0	31.5	40.0	.020	W.S.W.	Fair a.m.; overcast p.m.; light rain at night.
11	29.76	43.0	29.79	44.0	41.0	40.0	41.5	42.5	36.0	43.5		W.N.W.	Very fair.
12	29.77	44.5	29.75	45.0	41.0	42.0	42.0	45.0	39.5	45.5		S.	Very fair.
13	29.77	45.0	29.77	46.5	42.5	42.0	43.0	45.0	42.0	46.0		S.S.W.	Very fair.
14	29.89	45.5	29.85	47.0	43.0	45.0	43.0	45.0	42.0	47.0		N.W.	Fair a.m.; overcast p.m.
15	29.83	45.0	29.81	46.0	40.0	41.0	40.0	40.0	39.0	42.0		S.E.	Very fair.
16	29.1	40.0	29.8	38.5	29.0	29.0	28.5	28.5	25.0	30.5		N.N.W.	A dense fog, with hoar frost, continuing all day.
17	29.81	38.5	29.28	38.0	32.0	31.5	32.0	35.0	32.5	34.0		S.E.	Overcast all day.
18	29.74	36.5	29.71	38.0	30.0	31.5	33.75	32.5	30.0	36.0		E.S.E.	A fine morning; fair, but overcast p.m.
19	29.72	36.5	29.58	38.0	31.5	34.0	31.5	34.0	30.0	35.0	.055	S.S.E.	Very fair; rain during the night.
20	29.57	39.0	29.71	41.0	40.5	41.0	39.0	40.0	31.0	34.0		S.S.E.	Rain at 9 a.m.; showery all day.
21	29.77	41.0	29.75	41.0	34.0	34.5	34.0	33.5	33.0	34.0	.235	S.E.	Overcast 9 a.m.; continuing so all day.
22	29.51	41.0	29.49	42.5	36.5	40.0	36.0	40.0	33.0	40.5	.040	S.E.	Misty a.m.; overcast p.m.; rain at night.
23	28.98	43.5	28.83	45.0	42.0	44.5	42.0	45.5	38.0	46.5	.130	S.E.	Overcast all day, with a slight deposition of rain.
24	28.81	45.0	28.83	45.0	42.0	38.0	41.5	37.0	40.5	40.0	.040	E.N.E.	Rain 9 a.m.; clouded all day.
25	29.2	41.0	29.33	42.25	32.0	30.5	34.0	32.0	35.0	35.0	.025	N.N.W.	Very fair.
26	29.29	37.5	29.06	37.0	27.5	36.0	29.5	36.0	26.0	37.0		S.S.E.	A fine morning; snow and rain p.m.
27	29.12	38.5	29.22	40.5	36.0	37.0	38.0	41.0	35.0	42.0	.265	W.S.W.	Very fair all day.
28	29.67	39.0	29.73	41.0	35.0	38.0	37.5	41.5	35.0	42.5	.075	S.S.E.	Very fair.
29	29.58	40.5	29.57	43.0	39.5	43.0	40.5	45.0	34.0	46.0		S.S.E.	Rain a.m.; overcast p.m.
30	29.5	46.0	29.43	48.5	46.0	48.0	47.0	51.5	45.0	52.0		S.	Overcast, a.m.; rain p.m.; a brisk S. wind.
31	29.91	42.0	29.93	43.0	33.0	39.0	36.5	40.5	35.0	41.0	.045	S.W.	Very fair.
Mean 29.50		42.44	29.49	43.40	37.88	39.05	38.64	40.98	35.91	42.35	1.340	Sum.	

Remarks.

Barometer. 9 a.m. 3 p.m. Thermometer. 9 a.m. 3 p.m. Dew Point. 9 a.m. 3 p.m. Height of the cistern of the barometer above the ground, 23ft. 6in. Height of the external thermometers above the ground—Fah., 38ft.; Self-reg., 38ft. Height of the receiver of the rain-gauge above the ground, 50ft.

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JANUARY.

Jan.	9 o'clk, a.m.		3 o'clk, p.m.		Dew Point,		External Thermometers.		Rain in Inches, read off 9 a.m. to 9 a.m.	Direction of Wind at 9 a.m.	Remarks.
	Bar.	Ther.	Bar.	Ther.	deg. Fahr.	3 p.m.	Fahrenheit.	Self-register.			
	Bar.	Ther.	Bar.	Ther.	9 a.m.	3 p.m.	9 a.m.	3 p.m.	Lwst.	Hlthst.	
1	29.72	42.5	29.6	46.0	40.0	42.0	44.0	47.0	37.0	48.0	Very fair; a brisk S.W. wind; greatest force, ¼ bef. 1 a.m. (2) 12 pounds. [at night.
2	29.52	44.0	29.52	45.0	38.0	40.5	42.5	44.5	42.0	45.0	Very fair.
3	29.38	45.5	29.23	47.0	41.0	42.5	42.5	48.0	43.5	48.5	Very fair; brisk wind from the S.W., grt. force 9½ lbs. at ¼ bef. 8 p.m.; rain [at night.
4	28.94	44.0	29.01	45.0	37.0	35.0	39.0	40.0	38.5	43.0	A fine morning; overcast, with a sprinkling of snow p.m.; grt. force of the [at night.
5	29.08	40.0	29.0	40.5	34.0	35.5	34.0	35.5	31.5	36.0	Snow a.m.; overcast p.m.; a fine clear evening. [wind, 7½ lbs. ¼ bef. 12 p.m.
6	29.14	38.0	29.09	37.0	30.0	33.0	31.5	33.0	31.0	35.0	A fine morning; snow and sleet p.m.; a gale from the S.S., grt. force ¼ past [at night.
7	28.43	41.5	28.5	43.0	33.0	31.0	43.0	37.0	25.0	43.0	Gale cont., grt. force ¼ p. 9 a.m. 22lbs.; snow at night. [4 a.m. (7). 29½ lbs.
8	28.98	38.0	28.98	38.0	24.0	30.0	28.5	37.0	32.0	38.0	Fair; snow at night.
9	29.24	37.5	29.4	38.0	30.0	25.0	30.0	33.0	29.0	33.5	Very fair.
10	29.64	36.0	29.62	40.0	39.5	35.0	33.5	39.5	26.0	40.0	Fair; a brisk S. wind 7½ lbs. on the square foot.
11	29.5	44.0	29.45	47.5	45.0	46.5	46.0	50.5	38.5	51.0	Overcast, but fair; rain at night.
12	29.64	48.0	29.67	46.0	43.0	38.5	44.0	44.5	44.0	45.0	Very fair; gale from S.W. at ¼ bef. 11 p.m.; grt. force 11 lbs. on S. ft. at 5m.
13	29.4	48.0	29.33	49.5	46.0	48.0	48.0	50.0	40.0	51.0	Gale cont., force 5 min. bef. 10 a.m. 10 lbs., overcast, a slight deposition of rain.
14	29.38	46.0	29.27	46.0	41.0	41.0	42.5	42.0	41.0	43.5	Fair a.m.; overcast p.m.; rain night; W.S.W. wind, gr. fr. 10lbs. 5 a.m. (15)
15	29.26	40.5	29.32	43.0	31.0	37.0	36.5	38.0	32.5	42.0	Gale continuing; highest force 9lbs., at 20 min. past 1 p.m.; snow at night.
16	29.42	39.5	29.43	40.0	34.0	32.5	34.0	36.0	32.0	37.0	Very fair; (frost).
17	29.58	36.5	29.53	37.0	25.5	31.0	29.5	34.0	28.0	35.0	Very fair; (frost).
18	28.65	35.0	29.6	36.5	27.5	29.0	29.5	33.5	26.5	35.0	Fair a.m.; overcast p.m.; rain at night.
19	29.02	41.0	29.05	42.5	42.0	38.0	44.0	41.0	32.0	46.0	Rain a.m., with a brisk wind; fair p.m.
20	29.4	41.0	29.4	40.0	40.5	40.0	41.0	36.0	43.0	42.5	Fair a.m.; overcast with rain p.m., continuing all night.
21	29.16	46.0	29.22	45.0	44.0	40.5	45.0	40.5	41.0	45.0	Overcast, but fair; frost, at night.
22	29.66	40.0	29.77	41.0	31.0	31.0	31.0	38.0	30.5	39.0	Very fair.
23	30.02	39.0	30.02	39.0	31.0	31.0	32.5	36.0	30.0	37.0	Very fair.
24	30.0	39.5	29.94	43.0	36.0	39.0	38.5	45.0	33.0	46.0	Very fair; light rain during the night.
25	29.6	43.0	29.52	44.5	43.5	38.5	44.5	42.0	29.0	44.5	Overcast a.m.; fair p.m.; a gale from N.W. gr. fr. 10 min. past 11 a.m. 10lbs.
26	29.72	40.5	29.77	41.0	32.5	35.0	33.5	35.0	32.0	36.0	Fair a.m.; overcast p.m.; with snow and sleet.
27	29.89	38.0	29.8	38.5	26.0	31.5	33.0	28.0	28.0	35.0	Very fair a.m.; overcast p.m.
28	29.55	37.0	29.36	37.5	29.0	26.5	32.0	34.0	30.0	32.0	Very fair a.m.; a sprinkling of snow at night.
29	29.07	36.5	28.8	33.0	30.5	36.0	33.5	36.5	31.0	37.0	Fair a.m.; snow p.m.; a brisk S.W. wind, force 7lbs. 10 min. past 3 p.m.
30	28.75	34.0	28.61	35.5	21.0	25.0	25.0	30.0	24.0	30.5	Snow; a brisk S.W. wind, gr. fr. at 20 min. bef. 10 p.m.; 7lbs.
31	28.75	34.0	28.94	35.5	30.0	30.0	30.0	30.5	24.0	31.5	Snow; wind veered to N.N.W. the fr. at ¼ past 12 p.m. was 12lbs. the sq. foot.
Mean	29.39	40.50	29.16	41.70	34.42	35.41	36.87	38.97	31.88	40.48	1.365 Sum.

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