

days, Mr. Goodsir hoped to obtain a complete collection of the animals, plants and minerals existing upon them.

The expedition has now proceeded into the inhospitable icy regions of the north, and we must not expect to receive any further accounts of it until it has either succeeded in making its way into the Pacific Ocean, or having found that to be impossible, is on its return to England. In either case there can be no doubt that much valuable scientific information will be obtained.

XVII.—*Observations on some Plants obtained from the shores of Davis' Straits.* By WILLIAM SELLER, M.D., Fellow of the Royal College of Physicians, Edinburgh*.

A FEW weeks since, Mr. Sutherland, a student of medicine, who made a voyage last summer to Davis' Straits as medical officer of a whale ship, presented me with some plants gathered on the coasts and dried as he best could without any of the usual botanical conveniences. There are in all about twenty-five species, and a few of them are plants which cannot fail to interest the botanist. All of them were gathered within or close upon the Arctic Circle, on the coasts of Davis' Straits and Baffin's Bay, adjacent to the usual course of whale-fishing vessels, so that, were it deemed desirable, it would be easy, by holding out a little encouragement, to induce some of the many young men who go out annually in the same capacity with Mr. Sutherland to bring home collections of this description.

It is impossible to believe that the variations of species under the opposite circumstances of different regions, as respects soil, situation and climate, do not take place in obedience to fixed general laws. Yet our knowledge on this head at present consists almost exclusively of what may be called unreduced particular observations on certain species; too few to found upon. It may be that such laws prevail, yet lie beyond our reach. If such be the case, the only resource is to make up our minds to sacrifice brevity in regard to species observed to vary, and to practise detailed description of all their varieties. And fortunately, while this method serves as a considerable corrective of the evil in the meantime, it is the only plan, by following out which we can hope to arrive at the general laws of variation, if these be attainable.

When a species is known to be polymorphous, we might, in the meantime, advisably lay aside the ordinary circumscribed

* Read before the Botanical Society of Edinburgh, 12th of June and 10th of July, 1845.

form of definition in regard to it as leading only to error, and, in its stead, adopt detailed descriptions drawn from individuals produced in distant localities offering the widest possible range of circumstances. The obvious objection to such a practice is the room it takes up. In methodical botany, without doubt, brevity is a prominent excellence. But here there can hardly be any real sacrifice of brevity. For the needless multiplication of species is an unavoidable result of our definitions being not universal but local, that is, applicable to some localities only. All who have attended to Arctic botany feel in particular the force of the difficulties referred to.

Sir Wm. Hooker has well remarked on the extreme difficulty which attends the determination of what ought and what ought not to be considered as good species among Arctic plants: "Vegetables," he says, "of our own more southern latitudes often assume in those frigid regions an aspect quite different from what we are accustomed to see them wear; and which, without referring to a very extensive series of specimens, might well be supposed to afford decided marks of specific distinction*." And Wahlenberg, the well-known author of the 'Flora Lapponica,' speaking of the botanist who limits his attention to the characters of species as studied in one district, says, "Fingit sibi characteres sic dictos certos, et putat se eorum criteriis dijudicare posse diversitatem specificam plantarum totius mundi;" adding, after some further observations, "In hac re alii faciant quæ me facere vetant visa repertaque †."

On such views the observations with which I am about to trouble the Society are chiefly founded.

CRUCIFERÆ.—Among the plants in this small collection are some *Crucifera*. There are several specimens of *Cochlearia* and a *Draba*. Most of the specimens of *Cochlearia* are so imperfect, that it would be a waste of time to attempt to determine whether they should be referred to the *C. officinalis* or to the *C. anglica*, the latter of which is said to be the most common of the Arctic species. There is however one well-developed specimen in fruit which agrees with the *C. fenestrata* of Mr. Brown, with the exception of having long peduncles, particularly in the lower fruit, in which respect it answers to the *C. lenensis* of DeCandolle. It seems very certain, as Sir Wm. Hooker has remarked, that the fenestra occurs in the fruit-septum of other species of *Cochlearia* besides that which Mr. Brown named *fenestrata*; still, if the fenestra or rima be of rare occurrence in the other species, and if the absence of it be the exception in the *C. fenestrata*, it is a

* Appendix to Parry's Second Voyage, p. 382.

† Flora Lapponica, Ratio operis, p. 9.

useful descriptive character. In our specimen it appears in almost all the siliculæ that have been opened. In DeCandolle's description of the *Cruciferae*, he mentions, as occasional, the presence of a stria or a rima in the axis of the fruit-septum; and as far as I have observed, the stria, which may be regarded as indicating the tendency to the rima or fenestra, occurs generally in the species of *Cochlearia*. This stria or fenestra in the axis seems to suggest the idea that the dissepiment in the fruit of the *Cruciferae* is composed of two portions extended from the opposite sides to meet there. And if this be deemed probable, then the conclusion would follow that their seed-vessel is composed, not of two, according to the received view, but of four carpels. As Mr. Brown says he met with one specimen of *C. fenestrata* in which many of the siliculæ were three-valved and three-celled, I was curious to ascertain if any of those in our specimen presented this anomaly, but was disappointed. Mr. Brown does not say how the second dissepiment was placed. It is impossible to suppose that there were two dissepiments parallel to each other. I infer then, particularly as Mr. Brown uses the word "dissepimentum" in the singular number, that the additional septum joined the normal septum in the axis. Mr. Brown's discovery of three-celled pericarps in a cruciferous plant is an encouragement to botanists to search for the farther anomaly of four-celled pericarps among the same; which can hardly fail to occur, if the theory of their fruit being composed of four carpels or carpellary leaves be correct; for on this view it must be by abortion that placentæ and a septum fail to appear opposite to the cleft of the stigma, at the place in the valves occupied by the carina, when that is present in this kind of fruit. Mr. Brown also remarks, in his description of the *C. fenestrata*, that the umbilical cords are joined together at their bases by a narrow membrane. This narrow membrane farther illustrates the structure of the fruit in the *Cruciferae*. It represents the margin of the interior layer of the carpellary leaf stopping short close to the inner side of the middle rib, which here enters into the replum or frame of the dissepiment, while the dissepiment itself is composed of the outer layer joined with its fellow of the adjacent carpellary leaf and extended to the axis. This accords in so far with DeCandolle's account of the structure of the septum in the *Cruciferae*, though he describes it in different terms; he says the septum is formed by the reflexion inwards of the epicarps, while the endocarps stop short close to the suture and produce the placentæ. But if there be four such shortened borders of the endocarp, two at each margin of the septum, as in all siliculæ with a double row of seeds in each cell, then there must have been four original carpellary leaves, two entering into each valve, and two into each

half of the septum; and the replum or frame of the septum must be double, being composed on each side of the middle ribs of two of these leaves united; and further, each lobe of the stigma must be double, as being a prolongation of this double replum. Again, as the middle ribs of the carpellary leaves which make up each double lobe of the stigma are manifestly to the right and left of the portions of these produced into the dissepiment, the place of the dissepiment itself, though not in appearance, is in reality between these united halves of each lobe of the stigma, or the dissepiment in the *Cruciferae*, according to this view, is not a false but a true dissepiment, as alternating with the divisions of the stigma; and this must be very apparent if cases occur in which the usual abortions do not take place in the region of the carinae of the valves.

Our next Cruciferous plant is plainly a *Draba*. It is not easy to say with certainty to what species this plant should be referred. But for the small number of leaves on the stems, it might pass for a variety of the *D. incana*. I set it down as the *D. hirta*; not the *D. hirta* of the 'English Botany,' but the *D. hirta*, var. *a*, of Wahlenberg. The number of leaves on the scape is not so constantly two in our specimens as stated in the description of that species; sometimes there is but one; sometimes even four. The silicles are glabrous, oblique or slightly twisted, the peduncles shorter than the silicles and not absolutely free from pubescence. Some of the root-leaves are slightly toothed, those of the scapes uniformly toothed. DeCandolle remarks on this species, "Planta polymorpha cum sequentibus sæpe confusa et extricatu difficillima."

CARYOPHYLLÆ.—Of the *Caryophyllæ* we have the *Lychnis alpina*, the *Cerastium alpinum*, and a single specimen of a small plant with the habit of a *Stellaria*. The plant being far advanced, the form of the petal could not be made out at first, so that it was difficult to say whether it was an *Arenaria* or a *Stellaria*. At our last meeting, when the plant was shown, Mr. M'Nab suggested its being the *Stellaria scapigera*. This I believe it to be, and have since found that the petal is cleft to the base as in that species. Though found on our highland mountains, the *S. scapigera* has not appeared, as far as I have observed, in any of the lists of Arctic plants hitherto published. It does not occur in Wahlenberg's 'Flora Lapponica,' nor even in Hooker's 'Flora Boreali-Americana.' In a small collection of Arctic plants in the Society's museum, a specimen of what appears to be the same plant occurs under the name of *Stellaria Edwardsii*. To this species, however, our plant has but a distant resemblance. In our plant the leaves are connate, which I do not find to be re-

marked in the descriptions of *Stellaria scapigera*. As the plant in the Society's herbarium was obtained also from the shores of Davis' Straits, we may hope that opportunities will occur of examining the species under more favourable circumstances.

ROSACEÆ.—Of the *Rosaceæ*, besides the *Potentilla tormentilla*, there are several specimens of a *Potentilla* which deserves some attention. These specimens are of the same species, though one is much more branched than the others. The lower part of the stem is covered with a dense brown mass, composed of the enlarged stipules of the inferior leaves. In the midst of this covering the stem divides into several branches. These stems or branches in all our specimens are one-flowered and few-leaved, yet each at its base is covered with brown stipular sheaths arising from itself. The radical or lowest leaves are on pretty long petioles arising in the mass of stipular sheaths. These petiolated leaves are ternate, and each leaflet is crenate, having from five to seven convex teeth nearly but not absolutely equal; in the terminal leaflet there are commonly seven such teeth. Both surfaces of the leaflets, particularly the lower, are covered with silky hairs, and hairs of the same description copiously ciliate their margins. They are rather small, each leaflet being about the third part of an inch long and less than a quarter of an inch broad. The few leaves on the flower-bearing stems are also ternate, but smaller and less perfectly developed, the terminal leaflet having no more than three convex teeth; these have no petiole, but in lieu of it a pair of connate stipules. The flower-bearing stems, as well as the petioles of the lower leaves, are hairy, the hairs on the former being shorter. The calycine sepals are ovate, blunt or subrotund, the five exterior rather smaller than the five interior, the inner rather less round than the outer, subequal in both rows; both are hairy and fringed with hairs. The petals are considerably longer than the sepals, large and broad, obovate or emarginate.

There are not a great many species of *Potentilla* hitherto described with ternate leaves. Of these, the only species to which our plant approaches are the *P. nivea*, *Vahlia*, *emarginata* and *nana*. In some respects it agrees with each of these. The flowers are too large for the *P. nivea*, and moreover it differs in its whole aspect from the *P. nivea* at least of the Alps. It agrees better with the *P. Vahlia*, which is held to be the same as the *P. Jamesoniana* from Greenland, described by Dr. Greville. The leaves however in Dr. Greville's figure have hardly the same aspect; in Dr. Greville's plant the lateral leaflets are trifid, in ours usually quinquefid; moreover Dr. Greville describes the leaflets as gashed at the apices, those of our plant are crenate

over the whole margin. The description of the *P. emarginata* is rather vague; it seems indeed, as Sir Wm. Hooker* suggests, to be the same as the *P. nana*. Our species on the whole agrees very well with the *P. nana*, though the name does not seem very applicable to it, unless it refer to the large size of the flowers as compared with the moderate height of the plant. Lehmann, as cited by Hooker†, says the *P. nana* is distinguished from all the allied species by the "foliola calycina exteriora subrotunda obtusissima." These leaflets in our specimens are certainly roundish, though it may be doubted if they come completely up to the strong expression just quoted. The remarkable fringing of the leaves with silky hairs, so striking in our specimens, is hardly referred to in the description of *P. nana* or of the allied species.

SANGUISORBÆ.—Here we have the *Alchemilla vulgaris*, a well-developed plant.

ONAGRARÆ.—Among the plants before us there are two *Epilobiums*: one a single imperfect specimen, which may probably pass for the *Epilobium angustissimum* of Linnæus, among the habitats of which he gives Greenland; the other the *Epilobium latifolium*, of which there are several excellent specimens; the most beautiful indeed in this small collection.

DeCandolle says, in his definition of the *Epilobium latifolium*, "caule simplicis," with a mark of interrogation; Sir Wm. Hooker says, "caule subramoso." In all our specimens there are several stems arising immediately from the root, while there is hardly any branching in each. The leaves are ovate-lanceolate, as stated by all authorities. It is not however commonly noticed that the leaves are distinctly unequal on the opposite sides of the middle rib. Again, they are said by DeCandolle to be "integriusculis," and by Hooker to be "subintegerrimis." On examining the leaves in the specimens before the Society, I find the margins minutely revolute with slight irregularities, which give the appearance of very small straggling teeth. This appearance has possibly given rise to the belief of the leaves not being absolutely entire, as the above expressions imply. In these specimens the leaves are glabrous, which seems to be less usual. The leaves moreover in our specimens are alternate and opposite, as described by Linnæus. The peduncles are axillary, yet sometimes so close as to appear to be ternate or fasciculate. These peduncles, which are as long as the flower, are purple and inflated. The calyx is coloured as in the *E. glandulosum* of Lehmann.

SAXIFRAGÆ.—There are four Saxifrages, the *Saxifraga oppositifolia*, *S. tricuspidata*, *S. cernua* and *S. rivularis*.

* Flora Boreali-Americana, vol. i. p. 194.

† *ib.*

Of the *S. oppositifolia* I have nothing to observe. The specimens of *S. tricuspидata* are several and very well marked. Of the *S. cernua* the specimens are pretty numerous, while very few, as is usual, have flowers. One has a rather large flower with two unblown flowers near it, so as to form an approach to a simple umbel. In another there is a well-blown flower and an unblown small flower near it. The only specimen besides, which has a flower at all, is one-flowered. Sir Wm. Hooker in the 'British Flora' remarks on this species, "frequently there is no flower, and I have never seen more than one upon a stem." Linnæus also describes the *S. cernua* as one-flowered. Wahlenberg however says, "caule subunifloro," and Sir Wm. Hooker in his 'Flora Boreali-Americana' has in the definition "flore sæpe subunifloro." In these specimens the minute rounded bodies or bulbils which stand instead of flowers are easily extracted from the axils of the uppermost leaves. And in all the specimens the root is clothed with amylaceous scales, giving to it at the first inspection no small resemblance to the root of the *S. granulata*. In none of the descriptions that I have consulted is this singularity of the root referred to except by Mr. Don, who speaks of the "radix squamata, squamæ e basibus petiolorum foliorum primordialium enata." And moreover he places this species in his third section of the genus *Saxifraga*, termed *Leioogyne*, of which he remarks, that "the roots, whether scaly or fibrous, scarcely afford any specific character, as they have all a tendency to become scaly."

Our fourth Saxifrage is the *S. rivularis*. It is wholly in fruit, and is taller and stouter than usual. Wahlenberg says the *S. rivularis* hardly exceeds an inch in height. Hooker describes it as "pigmæa." Don gives two inches as the height of the stems. Our specimens approach to three inches. There can be no doubt however that these are specimens of the *S. rivularis*.

COMPOSITEÆ.—Of the plants before us, one only belongs to the *Compositæ*. On mentioning at our last meeting that I took this syngenesious plant for a species of *Arnica*, my opinion met with very little countenance. I have since examined the specimens with some care, and I feel satisfied that the plant is an *Arnica*, and that it is the same as what authors have described as one of the Arctic forms of the *Arnica montana*.

As however this Arctic plant differs so much in aspect from the luxuriant plant of more temperate countries, it may be worth while to give the results of that examination. Our specimens have no root-leaves, and Mr. Sutherland assured me that he saw none when he gathered them. On this however I shall not insist. The scape is five or six inches long, hollow, one-flowered. Between one and two inches above the base two opposite leaves or leafy scales arise, in some degree amplexicaul, or even approach-

ing to connate, each almost an inch long, triangular, acute, broadish at the base; above the middle of the scape are produced two other leaves, alternate, of the same form, smaller in size, the lower being rather the larger, distant from each other about the third part of an inch, each being amplexicaul in the same degree as the two opposite leaves beneath. The leaves are ribbed. In one of the specimens these upper leaves are wanting, and in another they are opposite, like those below. The scape has a jointed appearance at the origin of the opposite leaves, and is somewhat inflated just below the flower. It is slightly striated and clothed, as the leaves also are, with soft hairs varying in length. The receptacle is round, slightly convex, distinctly pitted, the apertures minute but deep, of two sizes with a raised narrow margin, which is fringed with an evident pubescence. In the Linnæan definition of the genus *Arnica*, which has been followed by most authorities, the receptacle is represented as naked; but DeCandolle says, "receptaculum fimbrilliferum pilosiusculum," as exhibited in these Arctic specimens. The leaflets of the involucre are in two rows, eleven in the outer row, eight in the inner; those of the outer row ovate-lanceolate, nearly uniform; those in the inner less regular, some being of the same form and size with the outer leaflets, while others are narrower and even shorter. The outer leaflets are near half an inch long, more hairy on their external surface than the scape, their outer surface and both surfaces of the inner leaflets being less hairy. The leaflets in both rows are deeply concave on their inner aspect, or rather carinate, with a middle rib. The ligulate florets are few compared with the number of tubular florets in the disc. They stand in a single row, and being eight in number, one seems to correspond with each of the inner leaflets of the involucre. The pits or apertures in the receptacle answering to the insertion of these ligulate florets are wider than those from which the bases of the tubular florets arise, with the exception of two pits near the centre, which have the same diameter as those around its border. The ligulate florets are rather large and conspicuous, being an inch in height from the receptacle; the lamina is broad, marked with several prominent, nearly parallel nerves, which branch off to bound the margins of the terminal teeth. The tubular florets are short, intermixed with the abundant pappus and overtopped by it: these are five-toothed. The style is forked in the florets of both disc and ray, the branches being long and pubescent, a part of DeCandolle's character of the genus *Arnica*. The pappus is scabrous, the achenium hairy.

ERICACEÆ.—The *Ledum palustre*.

MONOTROPEÆ.—The *Pyrola rotundifolia*.

SCROPHULARINÆ.—There are several specimens of *Pedicularis*.

laris. The form of the petiole and leaves resembling the snout of the saw-fish, marks them out as belonging to *P. hirsuta*.

POLYgone.E.—*Polygonum viviparum* and *Oxyria reniformis*.

EMpetre.E.—*Empetrum nigrum*.

SALICES.—*Salix Myrtilloides* and two imperfect specimens not yet determined.

CYPERACE.E.—*Eriophorum capitatum* and *E. polystachion*.

I owe an apology to the Society for the length to which these observations have extended,—far beyond the slight notices at first designed; and yet I have been able but very imperfectly to execute the task proposed. But in the progress of this slight attempt I have felt more and more convinced of the advantage to be derived, in abler hands, towards the improvement of practical botany from detailed descriptions of individual plants in the case of species liable to much variation.

XVIII.—*Horæ Zoologicae*. By Sir W. JARDINE, Bart.,
F.R.S.E. & F.L.S.

[With two Plates.]

No. VI. *Illustrations of Ornithology*.

Artamus mentalis (Plate VIII.).—Of the native country of this *Artamus* we have no information. The specimen from which our illustration was taken forms part of the ornithological collection belonging to the York Philosophical Society, and was noticed there by Mr. Gould as distinct from any of the previously described species. The principal characters that are at first sight apparent, are, the strength and size of the bill, the dark colour of the upper plumage, and the small size of the dark space on the chin compared with the colouring of the same part on *A. leucorhynchus*, where it covers the whole front of the throat and neck.

The bill is dilated and swollen at the base, and appears to have been of the same rich blue colour which prevails in those species which have been described from recently killed birds; towards the tip it shades gradually into black. The head, cheeks, mental patch, back and wings brownish black with an opaque grayish shade; tail black, narrowly tipped with white; the throat, breast and under parts, the rump and upper tail-covers, under wing-covers and axillary feathers pure white.

Entire length of the stuffed specimen, $6\frac{8}{10}$ inches; bill to gape, 1; to forehead nearly $\frac{8}{10}$; of the wing to the end of second or longest quill, 5. The accompanying figure is slightly reduced.

GENUS GNATHODON, *Jard.*

Gen. Characters.—Bill strong, maxilla hooked, sharp-pointed; mandible cut at the tip into three distinct angular teeth; nostrils