

- Ophrys arachnites*, *Hffm.*
 aranifera, *Huds.*
Epipogium Gmelini, *Rich.*
Cephalanthera pallens, *Rich.*
 rubra, *Rich.*
Epipactis latifolia, *Sw.*
Listera Nidus-avis, *Hook.*
Corallorhiza innata, *R. Br.*
Crocus vernus, *L.*
Iris germanica, *L.*
 graminea, *L.*
Leucojum æstivum, *L.*
Galanthus nivalis, *L.*
Convallaria verticillata, *L.*
 polygonatum, *L.*
Maianthemum bifolium, *DC.*
Ruscus hypoglossum, *L.*
Tamus communis, *L.*
Lilium Martagon, *L.*
 chalcedonicum, *DC.*
Erythronium Dens-canis, *L.*
Anthericum ramosum, *L.*
Hemerocallis flava, *L.*
Ornithogalum pyrenaicum, *L.*
 umbellatum, *L.*
 luteum, *L.*
Scilla bifolia, *Ait.*
Allium ursinum, *L.*
 carinatum, *Sm.*
Muscari comosum, *Mill.*
- Muscari racemosum*, *Mill.*
Veratrum album, *L.*
Tofieldia calyculata, *Wahl.*
Luzula albida, *DC.*
Carex Davalliana, *Sm.*
 brizoides, *L.*
 montana, *L.*
 alba, *Scop.*
 pilosa, *Scop.*
 humilis, *Leys.*
 pendula, *Good.*
 vesicaria, *L.*
 hirta, *L.*, *sublævis.*
 Michellii, *Host.*
Panicum Crus-Galli, *L.*
 miliaceum.
Hierochloa australis, *R. S.*
Phleum Michellii, *All.*
Milium effusum, *L.*
Sesleria cærulea, *Ard.*
Melica nutans, *L.*
 ciliata, *L.*
Poa bulbosa, *L.*, *vivipara.*
Cynosurus echinatus, *L.*
Festuca sylvatica, *Vill.*
Brachypodium sylvaticum, *Bea.*
Bromus secalinus, *L.*
Lolium speciosum, *Str.*
 temulentum, *L.*
Struthiopteris germanica, *L.*

XIII.—*The Birds of Calcutta, collected and described by*
 CARL J. SUNDEVALL.

[THE following memoir is contained in a small but valuable collection of scientific papers published at Lund in Sweden, under the title of 'Physiographiska Sällskapet's Tidskrift.' One volume only has appeared, in 8vo, dated 1837–38, and, like the greater part of the scientific literature of Scandinavia, is almost wholly unknown in this country. As Prof. Sundevall's memoir on the Birds of Calcutta was likely to interest Anglo-Indian naturalists, I have long wished to get it translated; but as there is no Swedish and English Dictionary or Grammar to be procured in London, I was unable either to make the translation myself or to obtain one from others. By the kindness however of M. Bertram, a distinguished German and Scandinavian scholar residing in Oxford, I am now enabled to present a translation of this interesting memoir.—H. E. STRICKLAND.]

The scarcity of exact accounts of the ornithology of India may give some interest to the following notice of those birds which I myself saw and collected in the neighbourhood of Calcutta in the

year 1828 ; although these amount to very few, considering the great number of birds which must be found in such a rich country as Bengal situated under the tropics*.

I staid in that country from the beginning of February till nearly the middle of May, rather more than three months ; but I must not forget to observe, that during that time my attention was much taken up by the increasing new objects of all kinds, with the view of obtaining as many as possible of every description of natural productions. The specimens which I brought home are preserved in the collection of the first gentleman of the bed-chamber, Baron Gyllenkroks, through whose patronage I had the opportunity of visiting India. I have only examined the nearest spots around Calcutta and the Danish possession Serampore, which is situated on the river four geographical miles to the north ; also the banks of the river a few miles further to the north as far as Sucsagor, where a small lake is found which abounds in water-birds. The whole of this spot is cultivated and taken possession of by man, just as much as any part in Europe. The country is low and flat and covered with mud, free from stones, for it is the deposit of the floods, and consequently increases every year. It is used by turns for farming or plantation as well as for groves of a great variety of trees, but mostly for bamboos and fruit-trees. These groves are for several miles around Calcutta so numerous that the country looks like a large forest, but five or six [Swedish] miles to the north above Chandernagor and Hoogly, or near Sucsagor, the great plains of Bengal commence. There is never an opportunity to visit the remarkable uninhabited tract of the coast close to the sea called Sunderbunds, which occupies eight to twelve miles to the south of Calcutta, which latter is situated fifteen miles from the sea. The tract is very woody, marshy, and in the highest degree unhealthy. The tigers which it is said are found there, but still more the *quickly-killing fever* (jungle-fever), which generally attacks those who dare to visit these wild tracts, have made the name alone a horror to the inhabitants of Calcutta. Certain I was that the tales were ex-

* Besides the circulated accounts, the original sources for the ornithology of India known to me are principally Gould's 'Birds of the Himalaya Mountains,' whose work I have not had an opportunity to make use of, and also Gray's 'Illustrations of Indian Zoology,' of which seven parts contain forty-five birds. The earlier accounts, *e. g.* Sonnerat's, had been introduced already into the work of Latham. Latham's 'General History of Birds' contains an extraordinary number of Indian species, which for the greater part have been described after the drawings of General Hardwicke, Mr. Anstruther and others ; but from the want of criticism, it is very difficult to make any use of this great work, which is the more to be regretted, as it contains numerous and excellent observations on the history of the different kinds by Buchanan and others.—C. J. S.

aggerated, and I wished to have gone thither, but I did not succeed. It is necessary to have been in Bengal in order to comprehend the difficulties which meet every deviation from the accustomed road as well as from general customs in every other respect. I have been able to obtain but little information as to what birds are stationary or propagate in that country, and what species are migratory. I only succeeded in discovering the propagation of a few species, and it appeared to me as if most of them intended to lay their eggs somewhat later in May, June, or about the same time as most of our birds. The answer to these questions is one of the most difficult tasks for a travelling ornithologist, but it is of some importance both for a future geography of birds as well as for a part of natural history in general.

From the following descriptions it appears that several remarkable singing-birds are quite common in India. They are found there as in all other countries; and I maintain the common idea with us to be wrong, that the tropical countries, which shine with a luxuriance and brightness both in plants and animals quite unknown in our country, are deficient in the charms and liveliness which the choir of singing-birds gives to our poorer climate.

On the contrary, I did not expect to find the singing of the birds less or worse about Calcutta than in Sweden, but there are some other reasons which the following facts will explain more clearly:—There are a great number of ill-looking, fearfully-screaming birds, of which our Crows and others can only be considered as insignificant representatives, besides a sufficient number of others, to raise in the eyes of most persons a pleasing impression of life in our forests. In India, as well as in most warm countries, they are on the other hand more numerous and scream much worse: they scream or chatter with too great a constancy. One class utter their frightful tones uninterruptedly in the middle of the day, when the heat invites both feathered and unfeathered lovers of music to rest. The latter are heard more than the singing-birds, and being more annoying they are more easily remembered, which is the reason that several travellers have complained of the singing of birds under the torrid zone. It was plainly to be observed that the number both of kinds and individuals was greater than with us, particularly in February and March, before the birds of passage had gone towards the north. Many of the common kinds shine with the most beautiful colours, so that by this alone any one might know that he was in a tropical country, but no one must conclude from this that all natural products are equally grand. On the contrary, the greatest part of them resemble the common productions in

our regions, and there are besides a great number which are uglier, or at least less beautiful, than some which are found in our country. These are less known, because they have been seldom mentioned in accounts of travels, but such are often the very things which offer the greatest interest to the natural philosopher.

Among the different kinds of Bengal birds which have been here enumerated are, besides some which cannot be ascertained with certainty, twenty-five which are European, and seventeen of them Swedish. Only six appear which I have not found described before, and therefore must be considered as new to science. Four kinds which are domesticated with us have been quoted, *i. e.* pigeon, fowl, goose and duck. The different kinds have been classified according to the system of ornithology which I have introduced in the 'Vetenskaps Academiens Handlingar' for 1835. The descriptions are in Latin, as they would be considerably diffuse in any other language. The citations of Latham are conformable to his 'Index Ornithologicus.'

I. VOLUCRES.

1. *Oriolus melanocephalus*, L. Capite colloque nigris, tectricibus alarum extus flavis; reatricibus utrinque 4 (s. 3), fere totis flavis. Remiges 3—5 subæquales, reliquis longiores.

♂ *Adultus* (19 Febr. testiculis tumidis) flavissimus et nigerrimus. Alarum tectrices omnes totæ flavæ. Rectr. 4 mediæ basi latissime, apice angustius flavæ. Iris coccinea; rostrum læte rubrum, pedes nigri.—9½ poll. Ala 138 millim., tarsus 24, cauda 96.

♂ *Junior* (d. 22 Febr. testic. minutis) saturate flavus, sordide tinctus. Caput et collum fusco-nigra, fronte cum orbitis flavescens; loris sordide albidis. Jugulum et gula cinereo-olivacea, maculis longitudinalibus nigris. Ala nigra remigibus 3 ultimis et tectricibus late flavo limbatis. Remiges primariæ margine tenui griseo; cubitales extus olivaceæ, margine flavo. Rectrices 3 extimæ sordide flavæ extus vitta marginali nigricante; 4a plaga laterali nigra ante apicem; 5a nigra, basi ad medium apiceque anguste flavis; 6a (seu media) olivacea. (In latere dextro 3a et 4a fascia latissima nigricante.) Rostrum nigro-fuscum; pedes nigri; iris obscure rubra. Ala 132 mill. (Edw. tab. 186, fig. bona, sed rostro falso.)

This beautiful bird is called by the Bengalese *Halda gull gull*, probably because these syllables are apparently heard in its common song. The older males sit generally quiet on the top of a bushy tree, where they are well-hidden beneath the leaves, but they betray themselves even in February by their beautiful and clear flute-like notes, which compared with those of other birds are purely musical, so that they can be perfectly imitated on a wind instrument, which is not the case with the singing of most other birds.

They frequently vary, but the general tone sounds something like *tshittily tshottily*, which is often repeated after a short stop. Now and then an ori-oli ! tio ! tjoti ! &c. is heard. I have tried to express these sounds by notes. This singing is interesting



from the clearness of its tone, but however richer in change, it does not seem to me to be near so agreeable as the monotonous but full and melodious sound of our cuckoo. The laughing sounds which Levaillant says he has heard from the same species in the south of Africa are unknown to me*. The hen-bird sings probably seldom, and on that account she is rarely to be met with, however common they were. The above-described young male did not sit quiet like the older ones, but hopped about among the branches without uttering a sound. In his stomach he had only a kind of round seed (probably of some parasite plant); but two older males which I dissected in February had only eaten blossoms of the mango-tree (*Mangifera indica*, L.). I have not noted down whether this bird was heard or seen after the end of March.

2. *Turdus cafer*, L.—Merle huppé du Cap de Bon Espérance, *Briss.*, *Buff. Pl. Enl.* 563 (fig. non bona). *Le Curouge*, *Levaill. Ois. Afr.* 107. f. 1. (Gen. *Pycnonotus*, *Kuhl*=*Ixos*, *Temm.*)

Fuscus, capite subcristato, cum collo pectoreque nigris; crisso rubro; rectricibus apice uropygioque albis. Venter fusco-cinerascens; remiges 4 gradatæ; iris fusco-rufescens. Magnit. alaudæ; ala 98 millim., cauda 97, tarsus 25. (Alius paulo minor.)

♂ (Calcutta, Febr. testic. tumidis) colores puri; tectrices caudæ niveæ; apice roseæ. ♀ (Calc. Febr.) paulo sordidius colorata, tectrices superiores caudæ cinerascens. Non minor quam mas. In utroque sexu plumæ dorsi, ventris anterioris et tectrices alæ cinerascens limbatæ.

This is the bird which the Hindoos called Bulbul, and which is considered the most distinguished singing-bird in India. It acts the same part in the Hindostan and Persian poetry as the Nightingale in the European, and the name Bulbul is translated by the Europeans in India 'Nightingale.' The singing of the Bulbul is pretty powerful, and contains some parts which are like those of our blackbird, but they are in general more lively, almost like the *Sylviidæ*. It generally sings before noon, and even after the setting of the sun from the tops of the trees, with often

* It is now clearly ascertained that the S. African black-headed oriole (*O. larvatus*, Licht.) is quite distinct from *O. melanocephalus* of India, which at once accounts for the difference of their notes.—H. E. S.

interrupted strophes, like our thrush, so that a continuation of singing is seldom heard. It is said that it sings remarkably well even in a cage about evening; also that when in a free state it continues to sing through the whole month of June. Its common note is a warbling like that of the Thrushes, and sounds are sometimes heard resembling those of the human voice, and it is possible that its name is derived from this circumstance, for Bolla signifies in the Bengal language 'to speak,' 'to tell.' The singing was heard already in February. The *Turdus cafer* is stationary and numerous about Calcutta. No information about their propagation could be obtained. Their food is mixed: the above-described male had its stomach full of blossoms of the mango (*Mangifera*); the hen-bird had, on the contrary, only eaten insects. They were seen singly or by pairs in the trees, their movements did not seem to be very quick, and their flight was hopping, like our Warblers. The feathers of its head rose often to a tuft, both by the wind and by the bird itself.

This bird is found throughout India, and according to Levaillant, Brisson and others, in South Africa, most probably even in Persia and the middle of Africa. According to Pallas, it is the *Sylvia luscinia*, which the Armenians call Boulboul, and the Crimean Tartars Bylbyli; but in the Persian language it is called Gandalip. I do not know which kind is meant by the Boelbel of the Arabians.

3. *Turdus jocosus*.—*Merula sinensis cristatus minor*, *Briss. Orn.*, vol. ii. p. 255. tab. 21. f. 2; *Buff. Pl. Enl.* 508 (fig. mala). *Lanius jocosus*, *Linn.* *Lanius emeria*, *Linn. sec. Albin et Edw.* 190.

Cristatus griseo-fuscus, subtus cum gula albus, genis albis, linea tenui nigra cinetis, plumisque quibusdam longissimis, coccineis; crisso rubro. Fascia pectoris interrupta nigra. Iris fere nigro-fusca. Priori paullo minor.

♂ (Calcutta, Feb. 9, testic. tumidis). Ala 88 millim., tarsus 22½, cauda 82. Crissum fulvo-rubicundum, rectrices pleræque apice late nivei. ♀ (Calcutta, Mar. 12) similis, colore paullo sordido sed crisso fere coccineo. Rectrices apice sordide albidæ. Ala 82 mill., tarsus 22, cauda 70. Crista vix minor quam maris.

In the Bengal language this bird is called Sonna. It is considered to be stationary, and was not scarce. Its movements are not easy, but of a proud bearing, and it seemed to be very remarkable for its great strength. This bird has likewise the most perfect and firm muscular frame I have ever seen among singing-birds. The same is the case in a less degree with those before described, and most probably with all kinds of the very natural subgenus *Pycnonotus* (*Ixos*, Temm.) to which they belong. A part of this group has even been classified among the genus *Lanius*, which in the above respect resembles them; but it is

undeniable that they in form and the way of living come nearer to the *Turdi*, and I cannot do otherwise than consider them typically among the singing-birds of the Thrush kind. The *Turdus jocosus* is often seen boldly stepping from one branch to another, raising its tuft, spreading and again lowering its long red-coloured chin-feathers, which extend rather under the eyes. It sang pretty well, but I only heard a very unmusical *tshoppi tshoki*, almost resembling language, which when heard from five or six individuals that were once seen together in the same tree in the month of February, sounded almost as if several talkative human beings had been in a lively conversation at some distance. In the month of March and April I saw them only singly. The one described had in his stomach skins of insects; the hen-bird, on the contrary, only berries of the banyan-tree (*Ficus benjaminâ*).

4. *Turdus mindanensis*, Gm.—Dialbird, *Alb.*, *Edw.* 181. *Gracula saularis*, *Linn.* Merle de Mindanao, *Buff. Pl. Enl.* 627. f. 1. Le Cadran, *Levaill. Ois. Afr.* pl. 104. *Turdus amœnus*, *Horsf.* *Lanius musicus*, *Raff.* *Lanius saularis*, *Vieill.**

Nigricans ventre vittaque alarum albis. Rectricibus utrinque 3 totis albis, gradatis. Rostro recto. Ala ut in *Pycnonoto*, sed differt tarsi longioribus, rostro, cauda.

♂ (Calc. 18 Febr.) supra cœruleo-niger. Jugulum et pectus anticum pure nigra. Longit. 8 poll. Ala 93 mill., tarsus 30, cauda 86. (Indiv. e Java, ala 100, tarsus 30.)—♀ (Serampore 4 Mart.) obscure cinerea, collo antice dilutiore. Color albus ut maris. Ala 90 mill., tarsus 29, cauda 80.

The Bengal name is *Dājāl*, which in the English orthography is written *Dial*, and has already been mentioned by Albin and Edwards. As far as I could learn, this name is originally Indian, without having anything in common with the English word *dial*. The actions of the bird in the trees are remarkably quick and lively. It is often seen flying from the dense summits of the trees, and plunging again into the foliage at a short distance. These actions have a very pleasing effect, as the black and white colours, which are arranged as in our Magpie, produce a beautiful contrast with the verdure. It was evident that a love of fighting and the instincts of spring produced this activity, which has given the bird a reputation for pugnacity and restlessness. On the ground it hops heavily but quickly, much like our Red-breast or Blackbird. Its song is beautiful and lively, and resembles most that of our *Sylvia hortensis*, but is stronger, and is often heard in the forenoon from the tops of the trees. In the

* M. Sundevall here unites the synonyms of the Malay species in which only three external pairs of rectrices are white, with the Indian bird in which the four outer pairs are white. The latter bird is the true *Copsychus saularis*.—H. E. S.

stomach of two individuals which I examined I found berries and insects. The bird is believed to be stationary in that country. It also exists in the Philippine Islands, Java, Sumatra, and in Africa as far as the Cape.

5. *Turdus citrinus*, Lath., Temm. Pl. Col. 445. Fulvus, dorso, alis, caudaque cinereis; crisso fasciaque alarum albis. ♀ dorso olivascens. Magnit. *Sturni*; ala 108 mill., tarsus 31. Rostrum nigrum, pedes pallidi. Ala et rostrum rectum præcedentis; cauda æqualis.

I have only seen this species once, but without procuring it. The above measurements, &c. are taken from two specimens which came from Calcutta at a later period (1832). It is evidently not rare there, and even occurs in Java.

6. *Ceblepyris lugubris*, n. Obscure cinerea, alis caudaque nigris; rectricibus gradatis, apice albis. Remigibus quibusdam macula alba interne notatis. (Affinis *C. fimbriata*, Temm., differt colore caudæ.)

♂ adult. (Mus. Lund, simul cum ♀ infra descr. e Calcutta 1832.) Nigro-cinereus, loris paullo obscurioribus; subtus paullo dilutior, immaculatus, crisso obsolete pallide undulato, tectricibus caudæ inferis apice albidis. Alæ paullo ænescentes; tectrices superiores omnes concolores; inferiores colore dorsi; remige 3a reliquis longiore, 4a macula parva alba punctata, paullo ante medium pogonii interni; 5a macula adhuc minore. De cætero ala immaculata. Rectrices laterales 22 millim. mediis breviores, apice long. 14 millim. pure albæ; mediæ reliquas superant, margine apicis albo. Rostrum et pedes nigro-fusci. Long. 6½ poll.; ala 114 millim., tarsus 20, cauda 100; rostrum ex imo ang. frontis 16; altit. 6. Lingua apice leviter bifida seu incisa, nec lacera.

♂ (Serampore 15 Febr.) a priori differt, remigibus 3—5 subæqualibus, macula majori alba, marginem internum attingente. Alarum tectrices quædam tenue albo marginatæ.—♀? (Mus. Stockh.) Subtus ad rostrum usque obsolete albido undata; crisso alarumque tectricibus inferioribus fere albo nigroque fasciatis. Genæ albido punctatæ. Remiges tenuissime albo marginatæ; 4a reliquis longior; 3—6 intus plaga majori alba. Ala 125 mill., tarsus 22, rostrum e fronte 17. Cætera ut in ♂*.

I have myself only seen in Bengal the male above described, which was shot in a tree, February 15, almost the same instant that I saw it. It had only eaten insects. The species of this genus resemble the Thrushes, and are very numerous in Africa, South Asia, and Australia†. They have a very curious structure

* This is the *Volvocivora melaschistos* of Hodgson, and is in all probability identical with *Ceblepyris fimbriata* of Temminck, although M. Sundevall makes them distinct.—H. E. S.

† The Mexican *Hypothymis chrysorrhæa*, Licht., Temm. pl. 453, probably comes nearest to this genus. But I have as yet had no opportunity to examine it.—C. J. S.

of feathers in the hind part of the back, which are pointed like spines: The quills of the feathers are remarkably thick and hard, and taper suddenly to a fine point. They do not however terminate there, but continue a little further with a uniform thickness. This continuation however, is slender and so soft, that it gives not the least resistance to a slight pressure; whereas the hard part has the appearance of a pointed spine. This structure is identical in the African, Asiatic and Australian species, so that no geographical subdivision of the genus, such as some have attempted, can be made.

[To be continued.]

XIV.—Remarks on some Points in the Structure of Cucurbitaceæ.

By J. E. STOCKS, M.D., Assistant Surgeon on the Bombay Establishment.

STEM.—Examining the pentagonal stem of *Cucurbitaceæ* we find the disposition of its leaves to be the quincunx ($\frac{2}{5}$), and the angles to be chiefly formed by the main nerve of a leaf, which does not proceed from the nodus at which that leaf is situate, but is given off from the axil of the fifth leaf below, or in other words, the leaf which, on reducing the part to the state of bud, would be *immediately* below.

Numbering the leaves: the nerve from the axil of leaf 1 becomes the main nerve in the petiole of leaf 6, but previously two offsets are detached, one to the tendril side of leaf 3, which forms one of the side nerves of the petiole, previously supplying the tendril, and one to form one of the lateral nerves of the petiole of leaf 4 on that side which is destitute of tendril. Now 3 and 4 are the leaves immediately to the right and left of leaf 1, and the main nerve proceeding from their axils gives off the lateral nerves to the petiole of leaf 6, from one of which is detached a branch to the tendril. It may be deduced that each leaf consists of three parts, one adhering to the stem and forming a part of it, having elongated with its elongation, and widened together with it—the stem-clasping or stem-sheathing part; one the free part, including petiole and blade; and at the junction of these on each side a process or auricle called stipule, which, in *Cucurbitaceæ*, is cirrhose and exists on one side only.

The three-nerved sheath has its middle nerve readily traceable to the fifth leaf below, but its side nerves on the elongation of the stem unite for some distance with the main nerve of those leaves which are situate to the right and left of it. From one of these is given off the branch to the cirrhose stipule.

STAMENS.—The perianthium has its leaves five in a whorl, the ovarial leaves are generally three. Hitherto the stamens have