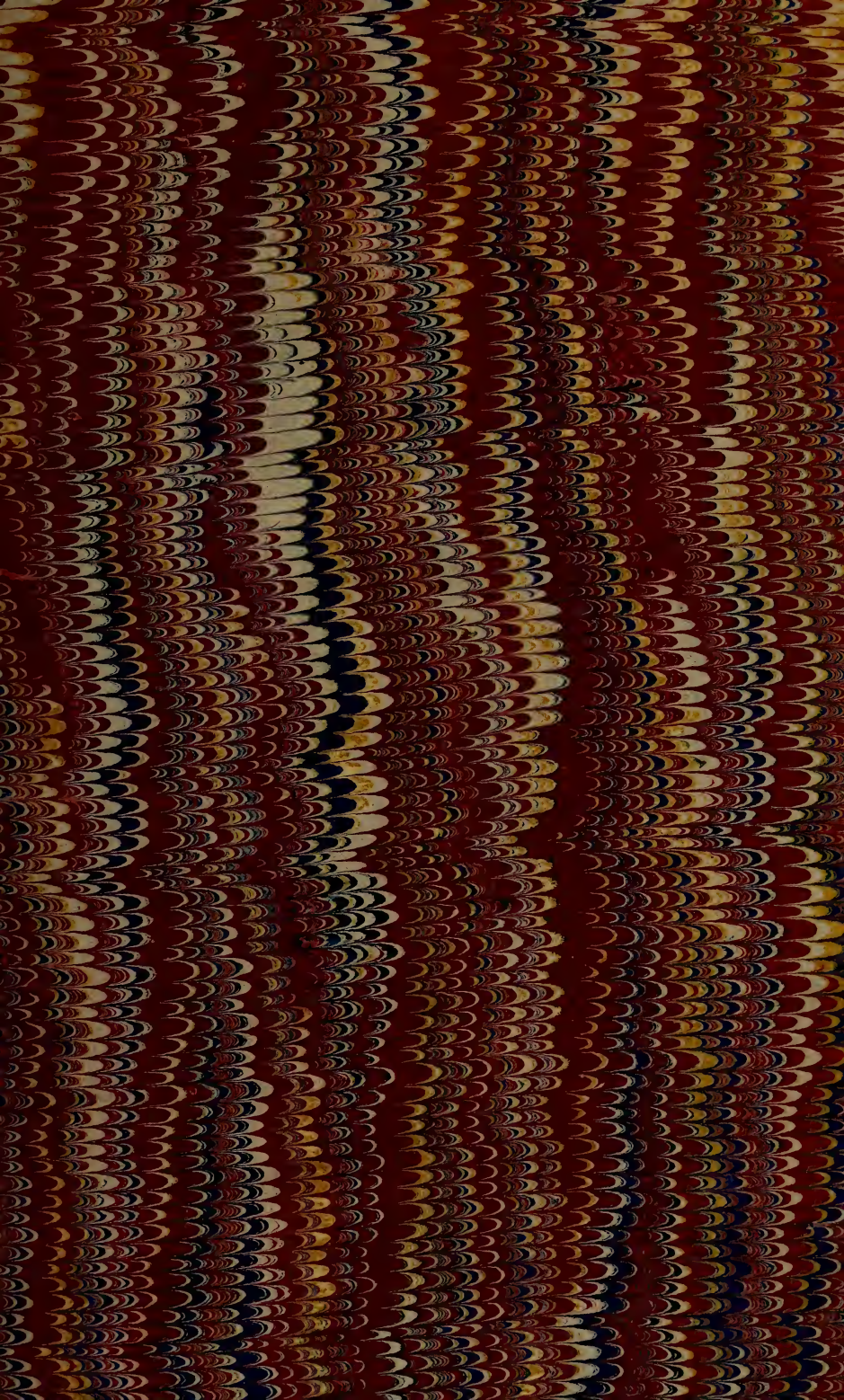


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EDWARD NEWMAN, F.L.S., Z.S., &c.

VOLUME THE THIRD.



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
M.DCCC.XLV.

Nature, Thy daughter, ever-changing birth
Of Thee, the great Immutable, to man
Speaks wisdom ; is his oracle supreme ;
And he who most consults her, is most wise.

YOUNG.

P R E F A C E .

I HAVE now the pleasure of offering a third volume of 'The Zoologist' to the notice of my brother naturalists — a volume containing a vast bulk of original matter, the greater portion of which is of the highest possible interest. The supply of contributions continues unabated; and I am rejoiced to observe a greater disposition among my contributors, to suppress redundant or common-place observations. I would particularly enforce the necessity of such suppression, for I have been frequently compelled to decline papers containing much that was valuable, because they also contained much that was redundant. I wish that every contributor would recollect, that the real utility of his communication depends upon the amount of information it contains; and I would particularly discourage too great a disposition to indulge in amplification. I have always said, and I again repeat, that FACTS are what we want; and the more simple and concise the language in which they are clothed, the more intelligible will they be to the readers of the day, the more valuable as archives of the science of Zoology.

'The Zoologist' continues to give all but universal satisfaction; a few pedantic advocates of mystification or technicality still dread to join the ranks of my contributors, lest their own lack of knowledge should be exposed: these of course regard my labours, or any labours that tend to make science extensively intelligible and useful, with the utmost jealousy: by them the writers in 'The Zoologist' are termed, by way of reproach, "mere observers," "men of facts," "species-men," &c.; they little think how truly honorable are all these titles. These objectors are however but few, and their attempts to retard the progress of 'The Zoologist' are analogous to

the labours of those sapient engineers, who once attempted to stay the rapids of the Shannon by a barrier of mud.

I have to report an increased sale during the past half-year; and it is to me a source of peculiar satisfaction to find that the sale of the earlier volumes continues also to increase: this is contrary to the usual fate of periodicals, the earlier numbers of which almost invariably remain a dead weight on the hands of the proprietor, until they are eventually sold at a price scarcely equivalent to that of waste paper. So different is the case with 'The Zoologist,' that it is deemed expedient to increase the price of the first and second volumes: but of this change sufficient notice will be given upon the wrappers of the monthly numbers, to allow of the present subscribers purchasing them at the original price.

The circulars to which allusion was made in my last address, have been extensively distributed, and I have every reason to hope with a beneficial result; but the early period at which this volume is completed, prevents my making any report of the sale for the current half-year.

It is a source of peculiar gratification to me to observe the interest taken in this work, both in France and Belgium. I consider that the observations which record the movements and habits of British birds of passage, when absent from our islands, are particularly valuable and interesting; and that the thanks of British ornithologists are especially due to MM. Duval-Jouve and Deby, for their papers on this subject.

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
October, 1845.

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ADVERTISEMENT.

'THE ZOOLOGIST' will be continued both as a monthly and an annual publication. As a monthly, it will contain thirty-two pages of letter-press, occasionally accompanied with illustrations engraved on wood; will be on sale three days before the end of every month; and will be charged one shilling. As an annual, it will be sold on or about the 1st of December; will contain twelve monthly numbers, bound and lettered uniformly with the present volume; and will be charged thirteen shillings. An alphabetical list, both of contributors and contents, will be published once in the year.

Note on the Quadrennial Appearance of Colias Edusa. I have received a great many letters communicating the occurrence of *Colias Edusa* during the present year: these are too numerous to publish; I have, however, made a selection from them, which I trust will be satisfactory to contributors, and agreeable to my readers. From other sources I learn it has occurred in vast profusion in several localities along the Sussex coast.

From the published and unpublished communications on this subject, I think several facts in this insect's history are clearly established:—1st. Its abundance for two successive autumns, proves that its appearance is not limited to any fixed number of years as was suggested in former numbers of 'The Zoologist.' 2ndly. Its geographical range seems nearly restricted to the southern and littoral counties of England. 3dly. The date of its appearance is chiefly the month of September.—*Edward Newman.*

Note on the occurrence of Colias Edusa. In answer to your inquiry (Zool. 282), whether *Colias Edusa* and *Hyale* have been observed during the present autumn, I am able to state that, on the 13th September, whilst out shooting near Bushmead Priory, Beds, I observed a male *Edusa* on the wing; and on returning with my net to the spot (a known locality for that insect), I saw and captured three specimens, all males. I have since then taken about half a dozen others; among them a very small variety, about the size of the insect figured in 'Humphreys' British Butterflies,' as *Chrysothème*? These were also all males.—*J. F. Dawson, September 27, 1844.*

Note on Colias Edusa and Limenitis Camilla. Having seen in the last number of 'The Zoologist' (for October) some remarks on the appearance of *Colias Edusa* this season in different parts of the country, it may not be uninteresting to record its occurrence in the Isle of Wight, where, though far from being equally abundant during the past summer and autumn as it is at particular periods, I have repeatedly noticed it within these last three months. Indeed, though unquestionably only to be observed plentifully in certain years, I think the appearance of this insect is annual with us, because I cannot call to mind any one summer during which I have entirely failed to remark it, since I became resident here. I captured a specimen in September, at Sandown, in the garden of the King's Head Inn, on the flowers of *Centranthus ruber*, about which *Cynthia Cardui* and *Vanessa Atalanta* were actually swarming, as they were on my return to the spot on the 4th of the following month. I am inclined to believe the assertion that *Colias Edusa* appears only every four years to be erroneous, but that particular seasons may be unfavourable to its development in any degree of plenty, or even effect its apparent extinction for a year or two, seems a fact pretty well established. It is probably the same with the beautiful *C. Hyale*, occasionally found in this island, but its far greater rarity makes the determination of that point difficult. It may not be out of place to remark, that for these last two or three years I have missed the easy and gracefully sailing *Limenitis Camilla*, which used to be very common in the woods about Ryde.—*W. A. Bromfield; Ryde, Isle of Wight, October 7, 1844.*

Note on the capture of Colias Edusa at Blackheath. I have taken two specimens of *Colias Edusa*, both on the 12th of August. The Rev. W. Marsh has also taken two, and I hear that Mr. Engleheart, and some youthful entomologists in this neighbourhood, have met with others, but I do not know the exact date. I am not aware that *C. Hyale* has been seen.—*J. B. Spencer; Blackheath, October 12, 1844.*

Note on the occurrence of Colias Edusa at Lympstone. *Colias Edusa* has made its appearance again this year in this neighbourhood, but by no means so plentifully as during the preceding season: I have seen five or six males and one female. Its appearance seems to have been general, as my brothers have seen it at Teignmouth, and letters from entomological friends mention its occurrence in other parts of the kingdom. — *Robert C. R. Jordan; Lympstone, October 14, 1844.*

Note on the capture of Colias Edusa in the Isle of Wight. In answer to your inquiries respecting the appearance, this year, of *Colias Edusa* and *C. Hyale*, I send you the accompanying list, which gives you the number captured, and seen additionally by me; and the respective dates. With the view of being as accurate as circumstances permitted, I did not hunt the neighbourhood round, but confined my researches to a particular spot; which spot, of between five and six acres in extent, consists of a depression in the form of a horse-shoe, open to the south, and reaching down to the sea-shore. From its sheltered situation, and from its abounding in wild flowers, it is the favourite resort of *C. Edusa*, *Cynthia Cardui*, and *Melitæa Cinxia* in its season; and from its immediate vicinity (for the northern edge is only sixty yards from my house) it was admirably suited to my purpose, as I could easily run out a dozen times in the course of the day, net in hand, and capture all that would allow me to approach them. This spot, then, I determined to make the field of my observations, and to forward to you the result. I accordingly captured every individual that was not too agile for me, every day, and carried them off to such a distance as I thought would effectually preclude their return, thereby ensuring myself against the repeated enumeration of the same individuals.

		Captures.	Seen additional.			Captures.	Seen additional.
September	3rd	—	1	September	26th	1	—
„	4th	3	—	„	27th	—	3
„	10th	1	—	„	28th	2	2
„	12th	9	3	„	30th	4	1
„	13th	3	2	October	1st	—	1
„	14th	—	1	„	4th	2	2
„	19th	6	—	„	7th	1	2
„	20th	5	1	„	11th	—	1
„	25th	5	3				

One of the five recorded as captured on the 20th September was the variety *Helice* of Haworth's 'British Lepidoptera.'

Such are the facts of the case; and the inference I draw is that *C. Edusa*, though not so numerous as it was last year, has been more abundant than in any preceding year since 1839. In that year I first saw this very beautiful insect, and captured several specimens; in 1840 I saw only one or two: in 1841 a few were captured; but in 1842 not one was seen. Last year I think I might have taken more than the number recorded above on the same spot. — *Chas. A. Bury; Bonchurch, Isle of Wight, October 14, 1844.*

Note on the capture of Colias Edusa, near Chelmsford. Since my last communication respecting *Colias Edusa*, I have found the insect rather more plentifully in the neighbourhood of Chelmsford, having taken four specimens, and seen several others. It has also occurred sparingly near Hitchin, in Hertfordshire, where I have myself

twice observed it, and I understand that a few individuals were taken there last year. — *A. Greenwood*; *Hitchin, October 14, 1844.*

Note on the occurrence of Colias Edusa. On the 14th of last September I observed a fine specimen of this insect flying by the road-side, close to Lyndhurst, in Hampshire, and on the 25th, another in the centre of the town of Southampton. On the 4th of September, a fine female was captured by my friend Mr. Grant, in a field adjoining Black Park, Buckinghamshire; and I am told numerous specimens have been taken in Battersea fields. I took a fine female on the 11th October, in a lucerne field, near Arundel, and saw others. A month since it was, I understand, seen in plenty in the same field, in company with a few specimens of *Hyale*. — *Samuel Stevens*; 38, *King-street, Covent Garden, October 18, 1844.*

Note on the occurrence of Colias Edusa in Suffolk, Essex, and Cambridgeshire. As you request to know whether *Colias Edusa* has been observed this autumn, I send you my experience on the appearance of that interesting butterfly in this part of Suffolk and Essex, and the adjoining part of Cambridgeshire. My acquaintance with it commenced on the 20th of August, 1834, when a small male was brought me by a young friend, who captured a pair in his hat at Horseheath, in Cambridgeshire, but the female made her escape; he informed me that he saw a few others. In 1835 (the quadrennial year) I took one male only near Kedington, and did not meet with it again until 1838, when one was captured on the Devil's Ditch, near Reach; in 1839 (the quadrennial year) I took three specimens near Ely, and saw three others which were taken by a friend: on the following year, 1840, only one was seen; and although I searched every year (particularly in 1842, when I rambled over several hundred acres of land in search of its congener *Colias Hyale*), I did not meet with a single specimen until last year (1843, the quadrennial year), when one was taken, and two others seen (*Zool.* 485); this year it has been rather plentiful; on the 12th of September, whilst driving between Sudbury and Foxearth, I saw two specimens flying by the side of the road, and have since taken three at Great Cornard, and seen about eight others in the surrounding neighbourhood, within five miles of Sudbury; I also saw one that was taken near Clare, about ten miles off, and am informed that two others were seen in the same locality. — *W. Gaze*; *Ballington, Sudbury, Oct. 18, 1844.*

Note on the occurrence of Colias Edusa at Cromer and Roydon. I observed *Colias Edusa* in abundance at Cromer, and captured a fine specimen in a low meadow at Roydon this autumn. — *Henry T. Frere, Corpus Christi College, Cambridge, October 24, 1844.*

Note on the capture of Colias Edusa near Swanage, Dorsetshire. On the arrival of our 'Zoologist' for September, we saw a question respecting the appearance of *Colias Edusa* and *Hyale*. Of the former we have seen fifteen specimens (while last year we met with it in the *greatest profusion*), and of the latter we have not met with a single specimen. — *Christopher R. Lighton*; *Swanage, Dorset, Sept. 17, 1844.*

Note on the capture of Polyommatus Arion. I have again taken, this season, on Barnewall Wold, Northamptonshire, this beautiful insect, in plenty (forty-nine specimens). It is a very local insect, for though I have searched the Wold well, I have only found it on one spot, in the corner of a rough pasture under a wood. It is an easy insect to take, flying very low, and is very conspicuous, settling occasionally on the wild thyme, the purple bugle, and a dwarf thistle, but I have never seen it on the bramble blossoms, though very abundant. — *Frederick Bond, Kingsbury, Oct. 7, 1844.*

Note on Deilephila lineata, or D. livornica, Daphnis Nerii, &c. The notice in the

last number of 'The Zoologist' (Zool. 736), announcing the capture of this fine insect in Lancashire, induces me to mention that a specimen was taken in this island last summer, at Winford, I believe in June, by a farmer, who gave it to Mr. Robert Loe, an ingenious blacksmith, at Newchurch, and a good practical ornithologist, from whom I received it; the upper wings a good deal rubbed by unskilful handling, and subsequent attempts at setting. The Isle of Wight possesses, I believe, all the British Sphingidæ, excepting *S. Pinastri*, *Deilephila Euphorbiæ*, and perhaps *D. Celerio*, for though I have seen no specimen of the latter, nor heard of its capture in the island, I can scarcely believe it to be really wanting, from its occurrence in so many places along the south coast of England, as Brighton, Arundel, &c. A splendid example of the rare, and I believe adventitious, *Daphnis Nerii*, is in the collection of a lady in this town, taken by a boy at Sandown, about the year 1833 or 1834, when many individuals occurred at Southampton, Dover, in Devonshire, and other parts of the southern counties of England.—*William Arnold Bromfield, Ryde, Isle of Wight, October 7, 1844.*

Note on the occurrence of the Death's Head Hawk Moth near Sudbury. Six caterpillars of *Acherontia Atropos* have been taken this autumn in Sudbury and its neighbourhood, two of which have come into my possession: the first retired into the earth about a fortnight since, but the other is still feeding on the leaves of the potato.—*W. Gaze; Ballingdon, Sudbury, October 18, 1844.*

Note on the capture of Lasiocampia Trifolii. I took one specimen of the above rare moth, on the wing, at New Brighton, Cheshire, on the 17th of last month, flying in company with *Agrotis valligera*, about nine o'clock at night; it was very cold and windy at the time. I have seen three others this season, but the whole of the month was one continued storm here, without even one night fit for entomological pursuits.—*C. S. Gregson; 60, Mill-street, Toxteth Park, Liverpool, Sept. 26, 1844.*

Note on the capture of Lepidopterous Insects at Black Park, Buckinghamshire. Having since the beginning of last June paid eight visits to this interesting locality, I am, with the assistance of two or three of my friends, enabled, I think, to send to 'The Zoologist' a tolerably complete list of the productions of this hitherto almost untried locality. The park is composed principally of large and fine-grown pine trees, interspersed with larches, oak, beech, birch, &c.; and in some parts the ground is covered with heath and fern. It is private property, and collectors will do well to obtain permission previously to going there.

Melitæa Selene

Argynnis Paphia, abundant

Limenitis Camilla. This graceful butterfly I understand is very abundant here some seasons

Thecla Quercûs

Polyommatus Argiolus

Hepialus hectus

Cossus Ligniperda

Zeuzera Æsculi

Clostera reclusa, larvæ, August

Stauropus Fagi, larvæ, August; imago, June

Notodonta dromedarius

Lophopteryx camelina, larvæ, August

Petasia cassinea, larvæ, June

Psilura Monacha

Dasychira pudibunda

Colocasia Coryli

Porthesia chrysorrhæa

Euthemonia russula

Fumea nitida ♂, and ♀, larva.

Callimorpha rosea

Lethosia Aureola

Helvola ♂, and ♀, the latter sex has never, I believe, been taken before in this country, and at first, by some, was presumed a new

- species. It is rare on the conti-
nent.
- Lithosia complana
quadra, both larvæ and imago
- Gnophria rubricollis
- Setina eborina
- Triphæna orbona, abundant
pronuba, in multitudes
- Cerigo texta
- Rusina ferruginea, very abundant
- Agrotis corticea, variety
segetum, abundant
suffusa
nigricans
- Graphiphora rhomboidea (tristigma of
some cabinets)
augur, common
brunnea, common
triangulum
baja, common
Dahlia (erythrocephala)
festiva, common
C. nigrum
pecta, common
bella (punicea)
- Mythimna Turca. With the exception
of an old specimen or two, this insect
has not, I understand, been taken for
many years.
lithargyrea (grisea)
- Segetia xanthographa, abundant
neglecta
- Grammesia bilinea and trilinea, probably
one
- Caradrina alsines
Sepii
cubicularis
- Amphipyra pyramidea, very fine and very
abundant
- Pyrophila Tragopogonis
- Dypterygia Pinastris
- Nænia typica
- Xylina putris
- Xylophasia lithoxylea
polyodon
rurea
epomidion
- Hadena adusta
- Hadena oblonga
thalassina
Saponariae
- Mamestra furva
aliena
Persicariae
- Euplexia lucipara, abundant
- Hama basilinea
- Apamea nictitans
didyma and varieties
- Miana strigilis
- Scotophila porphyrea
- Achatia piniperda, larva
- Polia advena
bimaculosa, abundant
herbida
- Apatela Aceris
- Acronycta Ligustri
Rumicis
- Thyatira batis, abundant
derasa
- Ceropacha flavicornis, larvæ, July
ridens, larvæ, July
- Tethea retusa
- Cymatophora Oo.
- Cosmia affinis
diffinis
Pyralina
trapetzina
- Leucania comma
- Anarta Myrtilli
- Mormo maura
- Catocala nupta
sponsa
promissa
- Fidonia atomaria
- Bupalus piniarius, abundant.
- Crocallis elinguaris
- Geometra erosaria
- Pericallia syringaria
- Angerona prunaria
- Campœa margaritata, abundant
- Hemithea vernaria
- Cleora bajularia
lichenaria, very abundant
- Aleis repandaria, abundant
conversaria
sericearia

Alcis roboraria	Xerene procellata
Boarmia extersaria	Thera simulata
Ephyra pendularia	variata
trilinearia	Macaria liturata, abundant
Eurymene dolabraria	Ennomos flexula
Cidaria quadrifasciaria	Cledeobia costæstrigalis
miaria, abundant	Asopia flamealis
Harpalyce biangulata	Simaëthis Myllerana, &c. &c.
Xerene albicillata	

All the Noctuæ, and many of the Geometridæ were taken whilst sucking sugar.—*Samuel Stevens* ; 38, *King-street, Covent Garden, September, 1844.*

Note on the capture of Phycita pinguis. I captured, between the 24th of June and the 10th of August, 1844, 102 specimens of *Phycita pinguis*, all of them from a large ash tree standing on the grounds of the cathedral, where it appeared the eggs had been deposited, as the bark of the tree had been perforated quite through, and on removing some pieces of the bark, I found many in the state ready to expand themselves; most of them were on the south side of the tree; they were very quick in flight, and very difficult to take: they appeared to depart to the surrounding gardens and shrubberies, and then return to the tree again.—*John Allen* ; *Ely, Cambridgeshire.*

Note on the larva of Cucullia Gnaphalii, Hab. Solidaginis, Stephens. Three larvæ of this very rare moth were taken in September, 1843, at Birchwood, by Messrs. Haggar, B. Standish, and J. Standish, each taking one. They all made their appearance in the perfect state the following June.—*J. W. Douglas.*

Note on the Sociability of Moths. There are some circumstances attending the capture of moths by sugar, which must have fallen under the notice of all who practise that system, but which I have never seen noticed. There are laws of which we are ignorant, which regulate their appearance, flight, and feeding: for on some nights, which former experience would teach should be favourable for their appearance, none are to be seen; at others, they fly, but do not feed, and more rarely they come to the sugar in quantities. Often does the collector use his most enticing bait on a fine evening without success, though perhaps the previous night moths abounded. There must be a reason for this; it is, I expect, an electrical state of the atmosphere, which to our organs of sense is not perceptible, that regulates their movements. That peculiarity of habit, however, to which I more particularly allude, is best observed on those nights when but few come to the sugar, and then on a dozen trees there will not be one moth, and on the thirteenth there will be six or more of different species. When I first observed this, I attributed it to some greater accidental attraction on one tree, but I have since seen the same kind of thing on the street lamps. It seems to me a curious circumstance, and worthy of attention.—*Id.*

Inquiry. Has confinement any effect on the colour of Caterpillars? I found several of *Dasychira pudibunda* in different stages towards maturity: some had shed their skins for the last time, others had not. I fed them with the foliage of such trees as I took them from: those that had made their final change retained the same beautiful colours as when I first took them; but every one that shed its skin in confinement, became black, the tips of the hairs emitting a very faint purplish tinge. The tuft on the tail, which is usually a bright rose-colour, became a black purple; insomuch that I was led to suppose they were the caterpillars of a different moth, but they all proved to be *D. pudibunda*. One had no tuft on the tail when I found it,

which I attributed to some accident, but was surprised that it was equally wanting after it had shed its skin.—*Wm. Turner ; Uppingham, Rutland, October 16, 1844.*

Description of Cochylis rutilana, a new British Moth belonging to the natural order Tortricites. This little insect has been obligingly sent me by Mr. Bedell, in order that I might figure and describe it in 'The Zoologist.' The head is fulvous; the eyes and antennæ are nearly black; the thorax is nearly black, its tippets being fulvous; the abdomen is dark plumbeous, inclining to black, the margins of the segments being fringed with grey hairs: the fore wings are ferruginous, with three distinct, and one obscure, transverse golden fulvous fasciæ; the first of these is situated near the base of the wing; it is short and broad; it touches the costal, but not the inferior margin of the wing: the second fascia is placed rather before the middle of the wing; it is longer than the first, and just reaches both margins; the third fascia is somewhat oblique, and is interrupted by an elbowed band of the ferruginous ground-colour. Just with the extreme margin of the wing is a fourth fascia of the same colour; this is narrow, very obscure, and is interrupted near the middle: the cilia are golden-testaceous. The hind wings are nearly black, with long ash-coloured cilia. The expansion of the wings is .45 inch. The insect was accompanied by the following note from Mr. Bedell:—
 "On the 7th July last, while beating the juniper-trees on Sanderstead Downs for *Macrosiphia marginella*, I obtained five specimens of a small Tortrix, which at the moment I took to be *Argyrolepia tesserana*; however, on further examination, I found it was entirely new to me. On showing the specimens to Mr. Stephens, he at once pronounced it to be a species new to Britain, and on referring to Hubner, we found an excellent figure of it under the name of *Tortrix rutilana*. Mr. Douglas has also two specimens, one of which he captured on the same day that I obtained mine, but on another part of the Downs, the other he took subsequently either on Mickleham Downs, or Box Hill, where the juniper is as abundant as at Sanderstead."



Cochylis rutilana, magnified.

I may, perhaps, be allowed to state, that on a careful comparison of Mr. Bedell's insect with Hubner's plate of *Tortrix rutilana* (*Tortrices*, 247), I do not find the resemblance so exact as it has appeared to Mr. Bedell; the singular character of the interrupted third fascia is not given by Hubner. I am, however, so unwilling to multiply names, that I prefer placing it as a variety of Hubner's *rutilana*.—*Edward Newman ; 2, Hanover-street, Peckham, October, 1844.*

Note on the habits of the Honey Bee. The early and favourable notice of the Rev. C. Cotton's 'Bee Book,' was regarded as an earnest of much interesting information upon the subject of bee-management, being communicated by 'The Zoologist.' But not much intelligence of this nature has as yet been given through its pages, than which there is no more fit medium for imparting the result of observations upon the nature and habits of so useful an insect, when it is kept in Nutt's collateral boxes. This method of preserving bees lost an able advocate, when the learned and amiable Mr. C. left the shores of Britain for New Zealand. Perhaps some of the numerous readers of 'The Zoologist' would be able to communicate what success attended his bee management in that distant island. The class of men for whom he wrote his 'First Plain and easy Letter,' are so rivetted to the old and barbarous plan, that it would require a constant fire kept up against their prejudices, and that for a generation or

two, before any thing new was adopted by them, however sound and good it was. Might not a little be done for the cause of humanity in this way, by the contributors to this magazine? The extract from Huish, in p. 748, does not indicate that that author has been very fortunate in some of his observations on bees. He there says, "The bee will only work in complete darkness, &c.," and "the actions of the apiarian monarch are enshrined in almost impenetrable mystery." In a glass hive, constructed after the plan laid down by Dr. Dunbar, in Sir W. Jardine's 'Naturalists' Library, vol. vi. p. 182, I have often witnessed the operations of its inmates quite in accordance with the following extracts from the same volume of the 'Naturalists' Library.' "Exploring a glass hive on a soft spring morning, and following with his eye a bee loaded with farina, the observer will perceive the little active forager, on her arrival in the interior, hurrying over the surface of the comb, in search of a proper cell in which to deposit her burden; and, having found one, fastening herself by the two fore feet on its superior border, then bending her body a little forward, that her hinder feet may catch hold of the opposite edge of the cell. In this position she is next seen thrusting back her second pair of feet, one on each side, and sweeping with them from top to bottom along the two hinder legs, where the farina balls are fixed, and by this means detaching them from the hairy linings of the cavities, and depositing them in the cell."—p. 65. "In the operation of laying, the queen puts her head into a cell, and remains in that position about a second or two, as if to ascertain whether it is in a fit state to receive the deposit. She then withdraws her head, curves her body downwards, inserts her abdomen into the cell, and turns half round on herself; having kept this position for a few seconds, she withdraws her body, having in the meantime laid an egg."—p. 61. Other passages descriptive of the internal operations of the hive might be quoted, to show that the note from Huish, p. 748, falls far short of the insight given by Dr. Dunbar, who, it is much to be regretted, had seen 'Nutt's Treatise' for the first time only when his vol. of the 'Naturalists' Library' was ready for the press.—*G. Gordon; November 27, 1844.*

Microscopical Society of London.

October 16, 1844.—J. S. BOWERBANK, Esq., F.R.S., &c. &c. in the chair.

A paper on the Adipose Tissue, by Alfred Smee, Esq., F.R.S., was read. After briefly noticing the opinions of various anatomists and physiologists upon the adipose tissue, Mr. Smee proceeded to state that he was led to the examination of this subject by observing, that when trying experiments with various injections, the fat was of an unusually deep tinge; and wishing to discover the cause of this appearance, he was induced to pursue the investigation, until he arrived at the conclusions stated in the paper. The animals operated upon were principally cats. Having destroyed life by means of an infusion of tobacco, or of Prussic acid, the chest was instantly opened, and a tube being inserted into the aorta, the vessels were injected with a

solution of carmine. The consequences were, that vessels of extreme minuteness were perfectly filled with the fluid, and were thus rendered visible in the most delicate tissues of the body. Upon subsequent dissection the fat was found to be visibly tinged with the carmine. On a minute inspection, large vessels were discovered going to the adipose masses, which divided and subdivided, until the unassisted eye could no longer follow the ramifications. For the purpose of tracing their final distribution, pieces of the fat were placed upon slips of glass, and after drying were immersed in turpentine, and afterwards mounted in Canada balsam in the usual manner. Upon examining these under the microscope, it was found that the carmine injection had not only passed from the arteries into the capillaries, but had also from these last entered into the veins, thus injecting both arteries and veins, the latter being readily distinguished by a slight difference of colour, occasioned by the presence of a small amount of blood, amply sufficient to enable the anatomist to trace the two kinds of vessels through all their ramifications.

Mr. Smee divides fat into four kinds: — laminated, masses, granules and fat of omentum. These modifications are not occasioned by any specific difference in the substance of fat itself, but solely by the situation in which it is found. In all cases it is composed of cells, of a round or oval form, which, when many are aggregated together, in consequence of pressure assume polygonal forms, the hexagon being the more usual. These cells contain the fatty material, and each is invested with a membrane. Their size varies from $\frac{1}{500}$ to $\frac{1}{800}$ of an inch. In laminated fat one or more vessels enter the mass, which are continually divided and subdivided until the eye can no longer follow the ramifications, the branches frequently anastomosing with each other; these branches extend to the extreme margin of the layer of fat. In granular fat, the distribution of the vessels is not so distinct to the naked eye; still, however small the granule may be, a little twig is required to be distributed to each. In the masses of fat, vessels are seen to enter at certain distances, which freely join each other, and these branches also subdivide, so as to supply the entire mass equally with blood. The fat of the omentum is, however, the most curious and interesting. In this, the arteries are of great size and length, the principal long trunks anastomosing by large branches, and the arches so formed continually divide and subdivide, until at length branches are distributed throughout the whole omentum. These vessels again give off branches laterally, which divide into the minute ramifications destined to the supply of the fat. These

appearances vary according as the animal may be fat or lean. Under the microscope, the terminal branches of the arteries are clearly to be perceived joining the capillaries, which last are beyond conception numerous, and communicate with the veins. These are to be distinguished by their pale tint, and are seen accompanying the arteries throughout the greater part of their course, and leaving them at the terminal branches, or those immediately giving off the capillaries. These also continually subdivide, until at length they become joined to the capillaries. Nerves are also seen passing through the fat, with a more or less frequent distribution of arteries accompanying them. There does not, however, appear to be any evidence of the existence of lymphatics in fat. After entering briefly into the subject of the general structure, the development and absorption of fat, Mr. Smee stated that he had also examined the appearance of the adipose tissue as seen in the living animal. A young rabbit having been properly secured, the cavity of the abdomen was opened, and a portion of the omentum being gently drawn forth, was placed upon a slip of glass, and covered with a drop of water and a small piece of glass. It was now examined under the microscope with a succession of powers of from 50 to 800 diameters. Nothing, he states, filled him with so much astonishment and amazement as the scene now presented to his view. "Its beauty," to use his own words, "is surpassing, its intricacy amazing, and, in one of the specimens, the complexity of the vascular arrangement baffles all description, while the effect of the circulation of the globules exceeds anything the human mind can conceive, without having witnessed it."

Mr. Smee also made some remarks upon the relation of the anatomy of fat to its physiology, and also on the medullary tissue, or marrow. This is of a more delicate texture than fat, and is consequently more difficult to prepare for examination; still, however, in this, cells exist, and also abundance of blood-vessels: and he concluded with a few observations on the relation of adipose tissue to the other tissues of the human frame.

Nov. 13. — Professor Bell, F.R.S., &c., President, in the chair.

A paper by George Busk, Esq., entitled "Some Observations on the Natural History of the Echinococcus," was read. After premising that by the Echinococcus was meant the animalcule found in all true hydatid cysts in man and other animals, Mr. Busk proceeded to give a short summary of some of the leading points of the history of this department of Entozoology, for which he acknowledged himself indebted principally to a recent monograph on the Echinococcus by

M. Livois. He then described the Echinococcus from his own observations, first premising that the walls of the hydatid cyst in which the animalcules are contained, consist of a transparent colourless matter, deposited in very fine laminæ, the innermost being more delicate and more easily detached than the outer ones. Under a high power these laminæ are found to be composed of a finely granular material, resembling coagulated albumen. Numerous small opaque masses are seen disseminated irregularly in the walls of these cysts, and to the inner surface are attached the Echinococci in small bundles or masses, consisting of from five to twenty individuals, attached by short pedicles to a common central mass, which again is prolonged into a short common pedicle, by which the whole is attached to the interior of the parent cyst; the innermost lamina, however, appears to be prolonged over the masses of Echinococci and their pedicles, thus affording them a delicate envelope. These polypoid masses of Echinococci are composed of numerous distinct individuals, which occur in two forms; namely, with the head (which is surrounded with a circlet of spines) either protruded or retracted: the latter is the condition usually observed, the other position appearing to be the effect of a *post mortem* change. The Echinococcus with the head retracted exhibits an ovoid form, flattened at the poles, and having a depression or notch more or less evident in each. The body consists of an internal granular substance, apparently of different density in different parts, and enclosed in a thick external tunic, the outer surface of which presents no trace of cilia and is smooth; the internal surface is more irregular or rough, and between it and the internal granules are situated certain transparent oviform bodies, whose office does not appear. With regard to the mode of propagation or development of these animals, the author stated that the opinion entertained was that these aggregate masses were probably a stage in the development of the animalcule, the earlier and later periods of which demanded further observations; and thus he was disposed to agree with Siebold in his view of their proceeding from a sort of gemmation from the parent cyst. The way in which these Entozoa become disseminated in the animals they inhabit, he also stated to be a subject as yet involved in obscurity, as well as many other points of their natural history.

Dec. 11. — Professor Bell, President, in the chair.

A paper by the Rev. J. B. Reade, "On Animals of the Chalk still found in a recent state in the stomachs of Oysters," was read.

After some introductory remarks, Mr. Reade stated that a consideration of the well known ciliary currents in the fringe of the oyster,

induced him to examine the contents of the stomach, under the expectation of finding some minute forms of Infusoria, which, in the absence of locomotive power, compensated by the beautiful contrivance just alluded to, might reasonably be expected to form the food of the creature. His expectations were fulfilled. In the stomach of every oyster examined by him, he found myriads of living Monads; the *Vibrio* was also in great abundance and activity, and swarms of a conglomerated and ciliated living organism, to which he proposed to give the name of *Volvox ostreare*. But the most remarkable circumstance was the presence of other Infusoria, having siliceous loriceæ, belonging to the family of the *Baccillariæ*, and similar to those which, in the fossil state, constitute the chief bulk of the chalk. They were the following: —

<i>Actinocyclus fasciola</i>	<i>Dictyocha fibula</i>	<i>Xanthidium furcatum</i>
<i>Coscinodiscus minor</i>	speculum	hirsutum
putina	<i>Gallionella sulcata</i>	<i>Zygoceros rhombus</i>
radiatus	<i>Navicula entomon</i>	suirella, and two new
<i>Dictyocha aculeata</i>	<i>Tripodiscus Argus</i>	species of this genus.

The whole of these, together with some other well known species of *Baccillaria* and *Polythalamia* were found alive in the stomachs of oysters. Having thus established the identity of the present Infusoria which form the food of oysters with the fossils of the chalk, he next proceeded to examine the contents of the fossil oysters of the *Kimmeridge* clay; and in these, as well as in the surrounding clay, he also found abundance of similar fossils.

The inferences drawn from these observations were:—1. That the ciliary movements of oysters, and, from analogy, those of other bivalves, are the means by which these creatures are supplied with food, consisting of minute Infusoria and *Polythalamia*; which food, from the absence of sand, and other extraneous bodies, they evidently have the power of selecting: and, 2. That many of these Infusoria being similar to those found in a fossil state in the chalk and other secondary formations, supply that link in the great geological chain of organized beings, formerly supposed to be wanting, between the cretaceous and antecedent series and the series of subsequent formations.

Mr. Reade also made some observations on the probable effects of heat upon organic remains; and concluded by quoting the opinion of Ehrenberg, that “since of the four as yet well established geological periods of the earth’s formation, the quaternary, tertiary and secondary formations contain recent organisms, it is as three to one more

probable that the transition or primary formation is not differently circumstanced, but that from the gradual longer decomposition and change of many of its organic relations, it is more difficult to examine and determine." — *J. W.*

Enquiry respecting the Polecat. Perhaps some of your correspondents would endeavour to explain the reason for the polecat leaving the fens and low meadows and plantations in September, and betaking itself to the high lands. This I have observed for several years, and cannot give any cause for it, as it is before either floods or frosts commence.—*Henry T. Frere ; Corpus Christi College, Cambridge, Nov. 1, 1844.*

Note on the occurrence at Puckaster, of Delphinus griseus, a species of Mammal new to Britain. I have the pleasure of forwarding for insertion in 'The Zoologist,' the description of a dolphin, not hitherto included among British Cetacea. The animal was killed in the spring of 1843, at Puckaster, nearly the most southern point of the Isle of Wight, where it had run aground. I was absent from home at the time, and did not return till it had been cut up and boiled down. I am therefore indebted to Mr. Horatio Dennett, of Newport, for all particulars, as well as for a drawing of the skull. The description and drawing I forwarded to Mr. J. E. Gray, who has pronounced it to be an example of *Delphinus griseus*. Its colour is said to have resembled that of a newly killed pig, being lighter on the under parts, and inclining to pink on the back. Teeth three or four on each side of the lower jaw, in front, conical, recurved, with rather obtuse summits, situated about three-eighths or half an inch apart, and varying in length from half an inch to five-eighths. The back-fin was said to be about the size of a man's hand; and the length of the entire animal about eleven feet. Your readers, by referring to Cuvier's figure of *Delphinus griseus*, and comparing it with the skull, now in the British Museum, may satisfy themselves of the correctness of Mr. Gray's decision as to the species.—*Chas. A. Bury ; Bonchurch.*

[I have been kindly furnished by Mr. Gray with further observations on this species: these, together with a figure of the skull, I hope shortly to publish. — *Edward Newman.*]

Notes on the Birds of Belgium. By M. JULIAN DEBY.

BELIEVING a few remarks on the migrations and occasional appearance of the birds, which myself and several conscientious naturalists have observed in Belgium, might prove interesting to your readers, as it will enable them to compare notes and dates,—I have taken the liberty of forwarding you these lines, for insertion in your 'Zoologist,' and beg you to believe me a friend to that useful and interesting journal. Being a foreigner, I hope you will excuse the many inaccuracies of my style.

I have grouped our birds into several divisions, deduced from their habits, as follows : —

1. Land birds truly indigenous, remaining the whole year with us.
2. Land birds remaining with us during the summer months, nesting here, but leaving in winter.
3. Land birds of regular double passage through the country, but which do not remain and nestle with us.
4. Land birds sojourning with us during the winter and leaving us in spring.
5. Land birds of rare or occasional appearance in Belgium.
6. Water birds, regular visitants in summer or winter, or on their double passage in spring and autumn.
7. Water birds of accidental occurrence.

DIVISION I.

The Kestrel, *Falco Tinnunculus*. Common everywhere.

The Sparrow-hawk, *Astur Nisus*. Equally common.

The common Buzzard, *Buteo vulgaris*. Common. Many arrive in flocks in the autumn at the same time as the fire-crested Regulus (*Regulus ignicapillus*) and the thrushes. A few build in our extensive forests.

The marsh Harrier, *Circus rufus*. Common in the extensive marshes of Campine, in the province of Antwerp, where it nestles. Seldom found elsewhere, except on the sea-shore in winter.

The little Owl, *Noctua Passerina*. Common in woods and orchards.

The Eagle Owl, *Bubo maximus*. Found on the rocky banks of the Meuse and Ourthe, where it builds. Very scarce in the forests of central Belgium.

The long-eared Owl, *Otus vulgaris*. Common in the woods in summer and fields in winter.

The barn Owl, *Strix flammea*. Common everywhere.

The great grey Shrike, *Lanius Excubitor*. Local. Our scarcest species of shrike, and the only one which remains through the winter.

The Magpie, *Pica caudata*. Very common.

The Jay, *Garrulus glandarius*. Common, living in small communities of from six to ten individuals. Numerous flocks of this bird are seen in October, which apparently come from other climates.

The Jackdaw, *Corvus Monedula*. Very common in our towns, where it nestles, as it also does in the fissures of rocks.

The carrion Crow, *Corvus Corone*. Generally distributed, but not common. Solitary.

The Raven, *Corvus Corax*. Lives on the wooded mountains of the banks of the Meuse. Very seldom seen elsewhere. Gregarious.

The Rook, *Corvus frugilegus*. Very common. Some remain all the year round, but the greater number are migratory. Vast flocks are seen every year, during the month of October, flying in a south-westerly direction.

The Goldfinch, *Carduelis elegans*. Congregates in autumn.

The Linnet, *Linaria Cannabina*. Only nestles on the mountainous banks of the Ourthe and Meuse. It is found in the fields of the whole country in autumn and the beginning of winter.

The Chaffinch, *Fringilla Cœlebs*. Very common. Immense flocks pass in March and November.

The Greenfinch, *Coccothraustes Chloris*. Flocks in winter: only leaves the country when the season is uncommonly cold.

The Hawfinch, *Coccothraustes vulgaris*. Migrates in spring and September, but pairs and small flocks are seen all through the winter. Only nestles in the wildest parts of the country.

The Bullfinch, *Pyrrhula vulgaris*. Nestles in extensive forests and wooded rocks, small flocks migrate in autumn and winter.

The mountain Sparrow, *Pyrgita montana*. Common: congregates in winter.

The common Sparrow, *Pyrgita domestica*. Too common: gregarious in winter.

The Yellow-hammer, *Emberiza citrinella*. Common: forms large flocks in winter.

The Skylark, *Alauda arvensis*. Immense flocks pass during the month of October.

The grey Wagtail, *Motacilla Boarula*. In winter this bird is seen near unfrozen springs: it nestles in rocky river-banks.

The Dipper, *Cinclus aquaticus*. Scarce and very local. Found all the year round on the banks of some rapids in the Ardennes.

The Blackbird, *Turdus Merula*. All the year round in woods and gardens: very common at its regular passage in March and October.

The Hedge-sparrow, *Accentor modularis*. Common. This bird's nest is the one most generally appropriated by the cuckoo, (*Cuculus canorus*).

The Redbreast, *Ruticilla rubecula*. Common. Numbers of these birds pass at the same time as the thrushes in autumn.

The long-tailed Tit, *Mecistura caudata*. Lives in families of from twelve to twenty birds; haunts the pine and larch in preference to other trees.

The greater Tit, *Parus major*. Very common : lives in families.

The marsh Tit, *Parus palustris*. Common, and lives in families. Prefers the neighbourhood of water.

The crested Tit, *Parus cristatus*. Local and very scarce, found in some wild and uncultivated parts of the country.

The blue Tit, *Parus cæruleus*. Very common : gregarious.

The Nuthatch, *Sitta Europæa*. Lives in pairs or small families. Regular passage in spring and autumn.

The Creeper, *Certhia familiaris*. Common : lives in pairs.

The Wren, *Troglodytes Europæus*. Very common.

The Kingfisher, *Alcedo ispida*. Common : resorts in winter to the rivers and streams which remain unfrozen.

The green Woodpecker, *Picus viridis*. Common.

The greater Woodpecker, *Picus major*. Common in our forests in summer ; all over the country in spring and autumn.

The ring Dove, *Columba Palumbus*. Common : congregates in vast flocks in winter, and leaves the country when the season is uncommonly cold.

The rock Dove, *Columba Livia*. Domesticated ones often return to the wild state, and nestle in rocks and ruins.

The Partridge, *Perdix cinerea*. Common in cultivated parts of the country.

The Capercaillie, *Tetrao Urogallus*. Scarce, only found in the forest of Hertogenwald, near Verviers.

The black Grouse, *Tetrao Tetrix*. Same locality as the last, and some parts of Luxembourg.

The *Tetrao Bonasia*. More seldom met with than the preceding species. Inhabits the wildest parts of the country towards the Prussian frontier.

JULIAN DEBY.

Lacken, December 12, 1844.

(To be continued).

Food of Birds, &c in Confinement. By the REV. C. A. BURY, B.A.

We may consider it, I am afraid, as a settled point, it is so with me, at least, that the natural food of a species is not to be learned from the practices of individuals in confinement. I have known instances not a few of both birds and quadrupeds feeding, when in confinement, on apparently very unnatural food. I have now in my

possession a kestrel, which inhabits a large cage in common with a pair of ring-doves, and a pair of Surat doves ; and not only does he share their lodging very amicably, but occasionally dines also with them, it may be for sociability's sake, it certainly is not to satisfy the cravings of hunger, and helps himself, apparently with much satisfaction, to a portion, and a pretty large one too, of their boiled potato. One morning he was seen, though not by myself, breakfasting on their barley and peas. But I do not infer therefrom that the kestrel, when wild, eats either boiled potato or barley. My tame pheasants will eat mice ; and one hen bird will try to catch them for herself ; but I much doubt whether the pheasant is carnivorous when wild in the woods. I have known a dormouse devour a portion of his companion that had died during the night—I have heard of the little harvest mouse doing the same. Mr. Waterton has given us an Essay, showing, as do all his writings, the extent of his observations, and their general accuracy, wherein he refutes the notion of squirrels being carnivorous, because a solitary fellow in confinement demolished a small bird.

If we could know for certainty what is the natural food of any given animal, we must examine the contents of the stomach of individuals killed in their natural haunts ; and even then, we must proceed with caution. A perfectly credible witness, no other than R. Loe, told me of his having once killed a kestrel whose crop was full of earth-worms, and that they actually crawled out of the mouth of the dead bird. This is what I should not have expected ; nor do I consider one such instance enough to establish the habit as belonging to the species ; because some peculiar circumstances may have induced this particular bird to resort to an unnatural diet. But if two or three such instances were to occur, I should consider the habit as established ; and place the earthworm in the dietary of the kestrel ; because I do not think that a bird in a natural state could be induced, except by pressure of extreme hunger, or from ill health, to make a meal on what was not its natural food. When so pressed, some birds will doubtless have recourse to what they would not touch under ordinary circumstances. The ring-dove, during severe and protracted frost, feeds voraciously on the tubers of the wood anemone ; and the pheasant, when food becomes scarce, will, on the testimony of R. Loe—and I require no better,—fill its crop with the little parasitic plant found on the back of the oak-leaf. Still this plant, and the tuber of the anemone, are akin to the ordinary food of these birds ; neither is the earth-worm far removed from that of the

kestrel ; and, therefore, the probabilities were in favour of all three so feeding under the circumstances.

I almost think, however, that in the case of birds in a state of confinement or domestication, the natural tastes and habits are so changed by change of state, that unnatural food is frequently found to be more suitable than that which is natural : witness the variety of food prescribed, and, I verily believe, in many instances necessary, for the successful rearing of young birds of different species. The trouble of rearing young pheasants is not small, arising from the difficulty of providing suitable food : and yet, apparently, the further we recede from what is natural, the greater is our success. Even the flesh-maggot, which they probably would meet with occasionally in their wild state, disagrees with them in the pheantry unless it be well scoured. It is very common to give them the eggs of the large wood ant, and yet it is equally doubtful whether these form an article of diet in a state of nature. Several intelligent gamekeepers have assured me they never saw one of these nests that appeared to have been disturbed by the pheasants. I know one who is so fully convinced that these eggs are not natural food, that he has ceased, for that reason, to give them to his brood ; though, by the way, he is very eloquent in praise of boiled egg and fresh curd, not much more natural to them, as I opine.

I am inclined to assume that the refusal of a particular article of diet is a proof that such is not the natural food of the creature—and yet even here I have my doubts : for I have known birds in confinement refuse what those of the same species will eat in a wild state. Wishing to ascertain, by personal observation, whether or not the hedgehog is guilty of robbing hens' nests (I have expressed my fears on the subject, 'Zoologist,' p. 778), I procured one, or rather he offered himself for the experiment, by walking about within a few yards of my window one moonlight night in October last. Placing him in my conservatory, I set before him a plate of raw beef for his supper : in the morning the beef had disappeared. On the next night I gave him a choice of dishes—raw beef again, a boiled potato, a slice of bread, and a bantam's egg. The meat was eaten, the potato remained untouched, the bread had been nibbled, but the egg, though moved a couple of feet from the spot where I had placed it, was whole. I left the egg within reach for several nights, supplying, twice, no other fare, but the egg was not touched. Now this, I think, if not conclusive, is pretty strong evidence against the egg-eating propensity of the hedgehog : for the creature never refused to regale himself on meat,

whether dressed or raw, an unnatural food, the former at least ; and yet he preferred fasting to eating what is supposed to be a natural article of diet. He did not know instinctively, methinks, what a delicate supper he would have found within the shell of the egg. And this I hold to be almost conclusive, unless (a question for Mr. Waterton's larger experience) individuals of the same species feed differently in a state of nature ; that is, will one individual eat that which another, under similar circumstances, will refuse ? Will one hedgehog eat eggs, and another not eat them ?

But to conclude, what I fear you will consider to have already exceeded due bounds : it is useless, or nearly so, to expect to learn the natural habits of animals from those that are kept in confinement—an animal in confinement is no longer itself—we must roam the fields, the woods, and the moors ; we must follow the example of the indefatigable Waterton, though most of us at very humble distance, I trow, if we would read Nature correctly. General structure, and comparison of parts will help us to observe, but cannot be substituted for actual observation. Many birds agreeing nearly in their affinities, closely allied generically or specifically, will be found to differ much in habit. I would not seem, by this remark, to disparage scientific arrangement, far from it ; but it should not be supposed that, because two birds belong to the same genus, therefore we can certainly predicate similarity of habits. For while I admit a general agreement between structure and habits, there are many exceptions to the rule, as every out-door naturalist well knows.

Hence the value and importance of 'The Zoologist,' to the scientific naturalist. If it succeed, as it bids fair to succeed, in becoming a store-house of well authenticated and characteristic facts, you, Mr. Editor, will have done good service to the cause of natural science in giving it existence. I congratulate you on the measure of success already attained ; and wish you all prosperity, in abundance of valuable communications, and greatly-increased circulation, for the coming year.

CHARLES A. BURY.

Bonchurch, Isle of Wight,
December 1, 1844.

Birds at Spurn Head. By J. J. BRIGGS, Esq.

SPURN HEAD lies at the southern extremity of the East Riding of Yorkshire, and is a narrow neck or tongue of land, running down to the point where the river Humber falls into the German Ocean. This piece of land, at six miles from the point, is about four miles in breadth, and of a stiff, marly soil, which grows good wheat and beans, but almost without tree or shrub, and the hedges are low, decayed and stunted in growth. When you pass the village of Kilnsey (the last nearest the point), the neck becomes gradually narrower, until, at its termination, it is not more than one hundred yards in width, that is, between the sea and the Humber. Here the land assumes a desolate appearance. The sand of the shore has been drifted by high winds into large heaps, and these are covered with coarse herbage and rank grass, but the surface abounds with curious wild plants. The scene is singularly striking. On the one hand stretches a boundless ocean, covered with ships and cobbles, with the waves rolling at your feet; and on the other, the magnificent river Humber, with its curiously ribbed sands, and still waters dotted over with vessels; whilst the ground upon which you tread is like an arid waste, its dreary surface only enlivened by sea-fowl and plover, which start from their haunts in amazement at your approach. Such is the general character of the district to which the following notes refer.

Amongst the beautiful fowls inhabiting this region, is the sheldrake, a prettily plumaged duck, which frequents the sea-shores, and lives on shell-fish, and probably on a large thick worm, which is found working its casts in the sand. This bird breeds in June, and makes no nest, but deposits her eggs in rabbits' holes on Kilnsey warren. The eggs are sometimes dug out and hatched under a domestic hen; when this is the case, the birds generally thrive well, and trail after their adopted mother as ducklings after their dam. They run with facility, and when disturbed, utter a pleasing musical whistle. The bird lays nine or ten eggs.

Another interesting inhabitant of these shores is the ringed plover, which runs at race-horse speed; and the manner in which they traverse the ribbed as well as the smooth sands, is well worthy of observation. They are elegant in their manners, and occasionally give utterance to a clear whistle, which almost seems musical amidst the loneliness of their haunts. Their nest is deposited on the ground, amongst the long tufts of grass, or "bents" as they are called, and

sometimes on the loose sand. They feed on shrimps, prawns, worms, cockles and shell-fish. On the shore of the Humber were myriads of cockle-shells, from which the fish had been extracted by these birds and other wild fowl. I never saw more than one bird at the same time.

On the 28th of August, I noticed a single cuckoo about two miles from the coast; and in the afternoon of the same day two more birds settled on the cliffs, about four miles from Sperr Head. Upon my remarking to a resident there that these birds generally left Derbyshire about the 1st of the month, he assured me that he had the week before seen fifteen or twenty birds; so that it appears a considerable number migrate from this coast.

About the beginning of August, a fisher boy was rambling about Sperr Head, and discovered a pigeon resting on the top of the house of one of the seamen that manned the life-boat. He procured a gun and killed it. When plucking off the feathers, he observed one which attracted his notice, and kept it on account of its beauty. The bird was a carrier pigeon, and had been sent from Hamburgh; and on this feather (the fourth of the wing) was a drawing of exquisite design and execution. The ground colour of the feather was of a light dove, the figures being wrought in black. In the centre of a ring were two doves, each holding a letter, and near it the initials of the owner and the number 119, round which was a motto in German. The whole drawing occupied a space of about an inch square. This feather is still preserved at Sperr Head as a great curiosity.

Sperr Head and the neighbouring coast appear to be selected as a landing-place by most of our northern birds of passage, which alight there in multitudes at particular seasons. About October, large flocks of gold-crests, consisting of thousands, arrive there, and settle on the cliffs and coarse herbage peculiar to the spot. They are sometimes so exhausted as to be taken up by the hand and easily killed. They keep coming in parties for a week or more, and then disappear, journeying, no doubt, more inland. A gentleman who resides on the coast, and has frequent opportunities of observing them, assures me that the crests of these birds are of three colours, two of which are gold and red. The latter I suppose to be fire-crests.

Woodcocks arrive about the first week in October, in small parties, but disperse soon afterwards. When they first reach shore, they are so exhausted as to be easily killed with sticks, and sometimes taken up by the hand. Two dozen birds have been bagged within a short distance in the course of a few hours.

Turnstones come to the sea-shore about the beginning of August, and remain through the winter, when they depart. They are not difficult to kill at high water. A person wishing to shoot them secretes himself as well as he can among the rank vegetation, at a convenient distance, and as the waves advance towards the shore, the turnstones advance also, keeping just at the edge of the water, to procure shellfish and marine insects, and at this juncture they are easily killed; — six or seven may be shot in a morning. They are generally in parties of from two to eight or nine birds, but occasionally fifty or sixty may be seen together. When properly cooked for the table, the flesh is dark-coloured, well-flavoured and pleasant. As the tide retreats, the birds retreat also, and cannot then be procured, owing to the soft and inaccessible nature of the shore they frequent.

Wild fowl are said to be far less abundant about Sperr Head than formerly. About sixty years ago it was not unusual to find them in such multitudes, that when they rose into the air, the rush of their wings might be heard a mile, or sometimes even more. Now they are fewer in number, owing to the drainage of the marshes and swamps which they haunted. These congregations consisted of golden-eyes, wigeon, teal, ducks, &c.

Landrails come twice every year; six or seven may be killed in a morning.

Quails are scarce; one or two may be noticed in a season.

In hard winters snowflakes come from the north by thousands, but do not stay, and are only seen on their passage southwards.

Most birds of passage come with easterly, north-easterly and northerly winds, and generally when the moon is at the full.

Although woodcocks, when arrived at their haunts, keep pretty much to the ground, yet it appears that when on travel they take a very high range in the air. The captain of a vessel which sailed between England and Russia, said, that once when he was near Gottenburg, he fell short of provision, and put a boat to shore. As he travelled over some country covered with tall plants and bushes, he put up a party of woodcocks, which rose into the air to such a height as to be only just discernible. At a later period on the same voyage, when the vessel was near England, he happened to be looking through his glass at the clouds, as was often his custom, when he discovered a small bird, at such an amazing height that it seemed no bigger than a lark. He kept his eye attentively upon it, and after watching it closely for some time, he perceived it lower its flight, and descend by

gradual stages, until it dropped on the deck. So breathless and exhausted did it appear, that he took it up with his hand.

Upon passing through Hedon, near Hull, I noticed at two of the inns there two tame ravens, which, upon enquiry, I found had been procured from Flamborough Head, in the fastnesses of which they breed annually. They were very quaint and amusing in their manners, and imitated with laughable precision the various modulations of the human voice, the cough of a human being, and also the voices of some animals. One repeated the notes of a cuckoo with wonderful clearness and even melody, not to be distinguished from those of the harbinger of spring. They were, however, furious and pugnacious, and would attack a child or dog, and on this account, in both instances, were kept confined.

J. J. BRIGGS.

King's Newton, Melbourne, Derbyshire,
November 12, 1844.

Occurrence of the Goshawk, in Northumberland. The very few instances on record of the capture of the goshawk, (*Astur Palumbarius*), in Great Britain, will perhaps render a brief notice of its occurrence, interesting to some of the readers of the 'Zoologist.' This beautiful bird, the rarest of the British Falconiæ, has thrice occurred in Northumberland, in every instance in the mature dress. A very large female was shot at Bolam Bog, on the 18th of February, 1841, and was sent to Mr. Thomas Ellison, animal-preserved, of this town, for preservation, in whose possession I examined it, whilst "in the flesh;" it is now in the possession of John Forster, Esq., of Shaftoe. Another female was also procured during the same year (1841) in the vicinity of the Duke of Northumberland's park, at Alnwick, and was for some time in the possession of Mr. Snowdon, gun-maker of that place. The third instance, also a female, was taken on the 2nd of October, 1844, in a trap, near Beddington, by the keeper of Michael Langridge, Esq., who had observed it flying about for a few days previous, and was forwarded to Mr. R. Duncan, of Newcastle, for preservation, to whose kindness I am indebted for allowing me to examine so interesting a rarity.—*Thomas John Bold, 24, Cloth Market, Newcastle-on-Tyne, Nov. 25, 1844.*

Nesting of the Jackdaw. I observe that Mr. Waterton in his 'Essays,' says, that there is no instance recorded of the jackdaw building on the boughs of trees. One instance of it has come under my own observation, and perhaps others may have fallen under the observation of some of your readers. The nest in question was about thirty feet from the ground, close to the bole of a silver fir; it was composed of twigs, and of very large size, almost a foot thick: it was in the spring of last year I observed it, and was puzzled for some time to know to what bird it could belong. I gave strict injunctions that it should not be disturbed, but as it was very conspicuous, and close to the high road, I was not able to have them carried into effect. The nest, however, remains there now, or did a month ago, but the birds did not, as I hoped they would, return to it this year. Perhaps it might not be out of place to remark how exceedingly early some pheasants were hatched this year. I came upon a nice

on the 3rd of June, which must have been four or five days old, thus being hatched a fortnight earlier than their usual time, in which they as well as partridges are mostly very regular, the one hatching about the 14th, the other about the 21st of June.—*Henry T. Frere, Corpus Christi College, Cambridge, November 1st, 1844.*

Occurrence of the Nutcracker, near Yarmouth. A specimen of the Nutcracker (*Corvus caryocatactes*) was killed at Rollesby, near Yarmouth, on the 30th of October, 1843. From the rarity of this bird, it is seldom that an opportunity is afforded of as-



Head of the Nutcracker : half the natural size.

certaining, by dissection, the nature of its food. It has been stated to live upon kernels and seeds as well as insects. The contents of the stomach of this bird consisted entirely of Coleopterous insects, and though it may also occasionally feed upon vegetable matter, I think that from the fact that this bird was observed near the spot for a week before it was shot, we may infer that such is not its favourite food. In its perfect state, the upper mandible of the beak of the nutcracker, as will be seen by the annexed outline, which is reduced to half the natural size, projects considerably over the lower. In foreign specimens which I have seen, the mandibles were of equal length, the projecting part having, I presume, been worn down by seeking for insects on the bark of trees; or, if the bird really obtains its subsistence in that way, by the process of breaking nuts and seeds. The tip of the upper mandible is horn colour, the rest of the beak is black.—*William Fisher, Great Yarmouth.*

On the Nesting of the Golden Oriole, in Kent. Having made enquiries about the nidification of the *Oriolus galbula*, in East Kent, mentioned by Mr. Sladen (Zool. 762), I am enabled to send the following notice of the occurrence, which may prove interesting to some of the readers of the 'Zoologist.' In the month of June, 1836, a nest built by a pair of these beautiful birds, was discovered in an ash plantation near the village of Ord. The nest, which consisted of fibrous roots, was attached to two upright stems of ash, around which the fibres were carefully twisted. The entire structure, however, was so thin, that when discovered, the young birds could be seen through the bottom of the nest. The young ones were taken every care of, but did not long survive their captivity. In the summer of 1834, several young orioles were shot in the neighbourhood: occasional visitors had been seen in that locality for some years previously. The Golden Oriole is common in several parts of Europe, and particularly in France, from whence I imagine those come which visit Kent. They are, I believe, supposed to pass the winter in Africa. The female is extremely attentive to her young, fearing no enemy, in their defence, and permitting herself to be taken in the nest with them. In those countries where they regularly breed, the

nest of the Oriole is generally suspended from the bough of a tree, and not fixed between upright boughs, as in the case above described.—*J. Pemberton Bartlett; Kingston, near Canterbury, Dec. 1844.*

Occurrence of the Lapland Bunting (Plectrophanes Lapponica), near Brighton, Sussex. Early in the month of October, 1844, I obtained a specimen of this rare bird, which was taken in a net, with a number of larks, on the Downs, near the town of Brighton. According to Mr. Yarrell, in his ‘History of British Birds,’ vol. i. p. 422, only four specimens are as yet on record as having been taken in Great Britain; and this specimen will appear the more interesting, as it differs in plumage from all of those. The specimen in question is undergoing a change in the colour of the feathers of the head, throat, and front of the breast. These parts, instead of being velvet black (as in the adult male’s nuptial plumage), are much mixed with greyish white; not from a new series of feathers, but from a change in the colour of the feathers themselves. Over the eye is a brownish white streak, whitest towards the base of the bill—a narrow band of white passes from the occiput down the sides of the neck, and round the upper part of the breast, forming a conspicuous boundary to the dark plumage of the throat, and upper part of the neck and breast. From the base of the lower mandible a narrow streak of white passes downwards, till it nearly joins the above-mentioned white band, about the middle of the sides of the neck: thus a triangular patch of black, almost uninterrupted by the lighter feathers, is *shut in* on the cheek—the lighter feathers have most nearly obliterated the black on the *chin*, and *middle* of the neck in front. The bright chestnut colour on the nape of the neck, and upper part of the back, is very distinctly defined, but duller than in the summer plumage; the bill is bluish-red, excepting the tip, which is black. In all other respects it agrees with Mr. Yarrell’s description of the adult male in spring and summer. This specimen was caught on the 30th of September last, and brought alive to a bird-preserver at Brighton. He informs me that its manner in the cage was similar to that of a newly captured sky-lark, running on the floor, and jumping over the perches: the only note it uttered was a harsh chirp. I took this specimen to Mr. Yarrell, in November last, and he at once pronounced that it had bred during the last summer. This appears to be the only adult male which has yet occurred in Britain.—*William Borrer, jun., Cowfold, Sussex, December 11th, 1844.*

Nest and Eggs of Long-tailed Titmouse and Golden-crested Wren. I have met with something unusual relative to the eggs and nidification of two species of birds, since the notices with regard to them have appeared in the ‘British Eggs,’ which are, I think, worth a record. There is in Mr. Empson’s museum, at Bath, a nest of the Long-tailed Titmouse, which has a hole at each side of it, so that it has the appearance of a basket, the dome over it forming the handles. This is not new; I mention it to bear testimony to a previous notice by Mr. Selby, on the same subject. Last spring I saw a nest of the Golden-crested Wren, which was placed in the centre of a low juniper-bush, and very little more than a foot above the ground. The eggs were, too, so totally different from those usual to the species, that, together with the strange position of the nest, I was almost in hopes that they would prove to be something new. The bird was, however, taken upon the nest, and examined. The eggs, instead of being, as they usually are, of an oblong form, and closely freckled all over with rust-coloured markings, were like those of the willow wren, nearly round, of a pure white, and sparingly spotted with reddish-brown here and there, like eggs of the marsh titmouse, and the sparingly spotted variety of those of the willow-wren.—*W. C. Hewitson, Bristol, Dec. 1844.*

Notes on the Frog. By R. Q. COUCH, Esq., M.R.C.S.L.

I VERY readily comply with your request, to state, through 'The Zoologist,' what I have found to be the manner in which the frog captures its food; and, if not trespassing too much on the space allotted to each subject, will add a few other particulars concerning the frog, which are not generally known, and which may be interesting to some of your readers. As far as regards the taking of their prey, I have very little new to offer; the general mode in which it is effected is already recorded in works on the *Reptilia*. But some of the variations are curious, and show that, low as they are in the scale of nature, they yet possess resources to overcome difficulties, and tact in accommodating themselves to their circumstances, which we could hardly have anticipated. The appetite of the adult frog, like what I stated was the case in their tadpole state (*Zool.* 677), may be called carnivorous. They never live on a vegetable diet, but prefer slugs, worms, and insects, chiefly of the coleopterous kinds; and the quantities they take are large, for their appetites are great, and digestion rapid; and hence they always feed when opportunities offer, and take as much as they can procure. This voracity is, however, frequently interrupted by long fasts, which they bear without much apparent injury, even during the most active periods of the year. To understand clearly the manner in which the food is taken, it should be remembered that the tongue is not formed on the same plan as in the higher animals, or is so remarkably modified as to have an entirely different character. As the tongue lies in the mouth, the free portion, which in man lies in front, is thrown backwards, and lies towards the throat, being, in fact, doubled back on itself; the fixed point being anterior to the free edge. When, therefore, the tongue is brought into action, the free edge is elevated and thrown forward, so as to reach considerably beyond the mouth. It is by this arrangement that the food is taken; for the frog possesses a power of directing its tongue unerringly to any object it wishes to take. The rapidity with which this is effected is so great, that it is not at all times easy to notice it, unless within a foot or two of it at the time. The frog having selected an insect for food, advances to it within the range of its tongue; this done, it squats with a great deal of composure; its arms slightly advanced, its head erected, and slightly turned on one side, and its bright and beautiful eyes fixed on the object of attack. In this attitude it will sometimes remain for many minutes, waiting, apparently, for a favourable opportunity. If the insect moves, or the opportunity

occurs, the tongue is instantly protruded and withdrawn, taking the insect with it. The rapidity with which this movement is effected, prevents its being seen how the tongue secures the insect, but it is generally said to be by means of a viscid secretion diffused over its tip. A worm is caught in the same way, but it sometimes happens that it cannot be so easily swallowed as the insect, and it hangs writhing and twisting about the mouth. But the frog rarely lets go its hold, however much the worm may twist, but succeeds in swallowing it, in just the same attitude in which it took it. While in the act of taking its prey, the body, following the motion of the tongue, slightly falls forwards, and again immediately regains itself, as the tongue re-enters the mouth. The frog always prefers living food, and this I have sometimes thought is the reason it so intently watches its prey before it takes it,—to see it move, to prove its life. I have seen an insect, between two stones, watched by a frog for nearly an hour together, and although it has repeatedly moved, yet the frog has not attempted to catch it, as if conscious it was beyond its reach. It has given it up in despair, but loath to leave it, has again and again returned to the charge. The whole process is one of much interest. The most ravenous period of the year to the frog, is just as it has left its hibernating retreat. This, according to authorities, is after the cold winter is passed; for they are represented as retiring to their hibernating retreats on the approach of winter, and passing all that gloomy period in perfect torpidity. This, however, is not the case in Cornwall; for the period of the greatest activity is in the depth of winter. This opinion is deduced from repeated observations from 1833 to the present year. In 1833, tadpoles were common in all ditches and road-side pools, as early as February; in 1834, 1835, to 1837 and 1843, the ova were generally observed as early as the 21st of December; and in every year, before the 1st of January. At this period I have caught the old animals; and in 1842 I saw many scores actively swimming about in December, so that no doubt could arise as to the identity of the spawn. On several occasions the cold was so great, that the masses of ova were enclosed in ice, and frozen, so that a blow would fracture them, like so much glass. As the months of December, January, and February, are generally the coldest in the year, it does not seem probable that they would leave their hibernating retreats at these periods, if hibernating depended entirely on cold. It is not unfrequently that we see both frogs and tadpoles actively moving about under the ice covering the pools. At this season the food is chiefly worms; but the insects are evidently their favourite food, and these they swallow whole and alive.

In the early state of the tadpole, it is well known they have external branchial tufts, which perform the function of respiration; these disappear, and gills for aquatic respiration take their place. Their appearance and disappearance depend on the temperature in which the tadpoles are kept. They appear before the young escape from the jelly-like envelope. In the ova procured in December, these tufts first appeared on the fourth and fifth day; and those obtained in January, with a higher temperature, on the second day after the ova are shed. In the disappearance of these tufts, it is a remarkable fact, that in all I examined, the tufts on the right side disappeared first, and in many instances, one day earlier than those on the left.

Connected with the temporary gills, there is a remarkable analogy existing between the cartilaginous fishes, the sharks and rays, and the frog. Temporary filaments, similar to those mentioned above, have been observed by Professor Owen, in the blue shark; in the thornback, by Dr. Allen Thompson; and in the torpedo, by Dr. John Davey; and I have examined them in the rough hound (*Sq. Canicula*), nurse hound (*Sq. Catulus*), miller-dog (*Sq. galeus*), smooth hound (*Sq. mustelus*), picked dog (*Sq. acanthias*), and many kinds of skates and rays, and in all, the filaments were long, slender, simple, and unbranched, traversed by a single reflected vessel. These were very long when the embryo was about one inch, or one and a half inch long; at this time they were about three quarters of an inch long, but they gradually got shorter, and finally disappeared before birth. It is familiarly known, that the gills of the sharks and rays are unlike the gills of other fish, free: on the contrary, they are, in a great measure, fixed and contained in chambers, which open externally by five orifices. In each chamber there are two gills, one attached to the anterior wall, and the other to the posterior. On the anterior only of these are the filaments found, and the vessels which traverse them are the continuations of the true vessels of the gills. This analogical structure is curious. In the land newt these appendages disappear before birth, in the same manner as in the sharks, but in the frog they remain for a short time after birth, while in the triton, or water newt, they remain till the animals are half grown.

R. Q. COUCH.

Penzance, December, 1844.

On the Habits &c. of the Viper in Silesia. By J. W. SLATER, Esq.

THE only poisonous reptile found in Britain is the viper (*Berus letalis*), which is now becoming rather rare in most parts. Whilst residing in Silesia, where this reptile, in common with several others, abounds, I made a few remarks on its habits, which may, perhaps, not be unacceptable. The viper is upon an average 18 inches long, although specimens of 2 feet and upwards, occasionally occur in the more unfrequented forests. Its tail tapers abruptly to a point, and the head, broad and flat, is marked above with a figure resembling a cross. Down the back runs a black or dark brown zigzag stripe; the ground colour in the male being grey (nearly white when the skin is newly changed), and in the female a copper colour or reddish brown. In depth and shade of colour, as well as in the distinctness of their markings, they vary much; and this variation, together with the difference of their appearance after changing their skin, and the sexual variety, has led to the formation of several supposed species, as *Berus Prestor* and *Chersea*. As I have possessed a complete series of specimens connecting these supposed species, and have moreover found no essential difference in their structure and habits, I cannot consider these as established.

The viper is principally taken in the turf-mosses and bogs which occur in the woods, frequenting especially the low stunted margin of the forest, with an eastern or south-eastern aspect. Very remarkable is its fondness for the marsh-rosemary (*Ledum palustre*), which grows plentifully in these morasses, attaining the height of five or even six feet, and imparting a peculiarly pungent smell to the air. I have never taken a female viper where this shrub was not to be found, and the males very rarely, only indeed at pairing-time, when they occasionally ramble far from their usual haunts. The bite of the viper is sufficiently formidable to excite alarm, and death now and then follows, particularly among the peasant women, who go bare-foot in search of wild berries. Its teeth are not strong enough to pierce a stout boot, and being also unable to climb trees, it is not very formidable. Like all other snakes, it never attacks man unless trod upon or handled; although the gamekeepers and peasants relate dreadful stories of narrow escapes from its pursuit. It is totally unable to leap, being only able to project its body for about half its own length, when

it has been coiled up. The Austrian adder possesses considerably more agility. If you hold it by the tail, it can gradually raise its head, and, coiling round its own body, reach your hand, whilst the viper is unable to quit its pendent position. The viper moves in a threefold manner, by the action of its scales and ribs, which in some degree compensate for the want of legs, and you may feel their action if you allow a serpent to crawl over your hand; but principally by forming its body into horizontal curves, supported against some root or twig. Hence, on a perfectly smooth surface, their motion is exceedingly slow and laborious; but amongst grass or shrubs, which afford them a purchase whenever required, they form part of the body into a curve, straighten it out, form another upon the next twig, and so proceed with great rapidity. Indeed, a terrified person, on witnessing the progress of a serpent through high grass, would easily be led to accuse it of flying.

Mice of various kinds, moles, and sometimes even rats, constitute the favourite food of the viper; frogs, which are eagerly devoured by the common adder, it rarely touches, except from necessity. Living animals are its only food, although I have seen a viper carry the wing of a sparrow, which had been thrown into the den, about in its jaws for a long time. Contrary to the opinion of some naturalists, I maintain that the viper generally, if not invariably, makes use of its venomous fangs to secure its prey. This I state with the more confidence, as I have seen the viper eat, both at large and in confinement, which I believe very few have witnessed. For the benefit of those who wish to study the economy of reptiles, I will describe the arrangements we made use of. A pit was dug in the earth, well walled and paved, and filled at bottom with bog-earth, turf, and roots of wild rosemary, for about two feet in depth. A stone trough full of water, fitted up with moss and pebbles, occupied one end, and the whole was covered in with glasses like a melon-frame. Into this receptacle we turned vipers, male and female, old and young, common adders, Austrian adders, and one specimen of *Coluber flavescens*, blind-worms, lizards (*Lacerta agilis* and *crocea*, the latter of which was for a long time considered fabulous by the Berlin naturalists), the tree-frog (*Hyla arborea*), common frogs (*Rana esculenta* and *temporaria*), toads (*Bufo cinereus*, *calamita* and *viridis*), *Bombinator igneus* and *Salamandra maculata*; in short, a pretty good assortment of European reptiles, which all seemed to live peaceably together. Now whether it was the soothing effects of the rosemary, I cannot say; but the vipers, which always, I believe, refuse food in captivity, lost their stoic virtue, and

lived as though they had been at large. It was curious to observe what a change took place in this peaceable assembly, when a mouse was introduced into their circle; all were up in arms in an instant, from the vipers to the very lizards, hissing and snapping at the unfortunate intruder. This antipathy seems to be mutual. I caught a field-mouse one day in the forest, with the intention of bringing it home for my snakes, and put it into a box in which were three lizards. On reaching home, I found the lizards all killed, and that in the same manner, by a bite in the neck, though which party had been the aggressor I cannot say. Dr. Lenz, indeed, supposes that the vipers are often destroyed by mice, before recovering from their winter's torpor. I dropped the mouse into the pit, upon which the vipers instantly commenced their attacks. The little creature seemed aware of its dangerous situation, and strove to escape, but before many minutes it received a bite in the thigh. It ran on a moment, stopped, turned on one side, struggled a little, and died, I believe, in about a minute from the time of its receiving the stroke. The viper had, in the mean time, followed its prey with its head and eyes, and now advanced to seize it, the others not interfering, which, strange as it may seem, never occurred when a mouse was killed. After touching the animal in different parts, and surveying it, as if uncertain how to begin, the viper drew itself up before the mouse, and opening its jaws to their full extent, seized the head, which it gradually, though not without hard labour, drew in. In about six minutes the mouse had disappeared, although it was easy to perceive, by the thickness, in what part of the snake's body it was lying.

I have seen it stated that the viper, if it finds any object which it may bite too hard to be penetrated, will not repeat the blow; this, however, I can totally deny. On holding down a viper with my foot, it made about half a dozen blows at my boot (on which the venom, when dry, appeared like small drops of gum), besides several snaps at the ground and in the air. It does not seem capable of calculating, with great precision, the distance and position of the object, and hence often misses its aim. The poison of the viper, although so fatal to warm-blooded animals, has very little effect upon reptiles, and hence the viper is occasionally overpowered and swallowed by the more agile and muscular Austrian adder, an instance of which occurred in the above-mentioned pit. The hedgehog also possesses the remarkable property of being proof against its poison, and employs this faculty to great advantage in destroying the viper. I have frequently seen combats between them, which always terminated in favour of the

hedgehog, which seemed perfectly regardless of the many bites it received on the snout.

The viper, if molested after feeding, generally disgorges its prey; one which I captured, and put into a large glass jar, ejected three mice in an advanced stage of decomposition. It died in about three months after, having refused to take food. The usual story of young vipers taking refuge down the throat of the mother, has, I believe, no foundation in fact. I have never seen it take place in the woods, and although the females in the pit very frequently produced young, they never seemed to pay the least regard to them. The disposition of serpents is, indeed, eminently unsocial. In selecting their winter retreat, it does occasionally happen that several creep under the roots of the same bush; and on the first warm days of spring, when they emerge from their cells in a very languid state, two or three males, which appear a week or ten days earlier than the females, may be found together, but without taking the least notice of each other; whilst in summer, it is very rare to meet with two together. The peasants, indeed, tell stories of snake-congresses, that might furnish a second Pliny with materials — of many hundred vipers sitting on the branches of a tree, and at the top the serpent-king, with his golden crown, which, by the bye, is nothing more or less than the two yellow spots on the neck of *Natrix communis*, seen through the chromatic lens of superstition. In the summer of 1837, I heard that a game-keeper, living on the banks of the Neisse, near Rothenberg, had found an immense assemblage of snakes' eggs. Accordingly, the next day, I called upon him, and he accompanied me to the spot. I found a small hollow in the earth, which might have been occasioned by the uprooting of a tree, filled with dead leaves, amongst which the eggs were really deposited in very large quantity. I considered them to be the eggs of *Natrix communis*, as those which I brought away afterwards proved to be. It seems not improbable that the female serpents, aware of the favourable effects of such a large mass of decaying vegetable matter, had resorted to it from all sides to deposit their eggs.

The viper has many enemies besides the hedgehog, amongst which the buzzard (*Buteo vulgaris*) is the most formidable, and possesses, though in a smaller degree, the power of resisting poison. The jay and the roller likewise occasionally destroy vipers. The best method of destroying the viper, or indeed any serpent which you may wish to preserve, is to administer creosote, or nicotin, which prove fatal in about one minute.

J. W. SLATER.

Occurrence of the Saury Pike near Yarmouth. A specimen of the saury pike, or skipper, measuring about fifteen inches in length, was taken off the coast of Norfolk about the end of October, 1843.—*William R. Fisher*; 13, *Gray's Inn Square*, November 18, 1844.

Occurrence of rare Fishes at Redcar, Yorkshire. I send two notes of the occurrence of rare fishes at this place this autumn, for insertion in 'The Zoologist.' A fine specimen of the short sun fish; length, two feet eight inches, depth, including dorsal and anal fins, three feet six inches, and weighing seventy-three pounds, was found on the beach at this place on the 11th instant. Ray's bream—Three fine examples of this fish have also been found on our beach this autumn.—*T. S. Rudd*; *Redcar*, December 13, 1844.

Note on the Gar Fish (Belone vulgaris of Cuvier). Within the last three weeks the gar fish has been abundant on our shores. There is something curious and inexplicable in the erratic visits of this little fish to our northern bays, as well as in its suicidal propensity of running ashore, and yielding itself an easy prey,—rendering unnecessary the fisherman's art of net or bait. Its visits are not periodical, either as regards the seasons or cycles. Twenty-two years have passed since they last appeared in considerable numbers. About sixty years ago they landed in shoals, particularly on the shore betwixt Campbelton and Fort George, in which locality they are called by the country people *Gobbaiche Ardnasoar*, or snipe fish. We are ignorant as to the habits of this fish, but from the length and structure of its mouth or snout, which resembles the bill of a snipe, we may suppose that it has to search for its food among the *Algæ* of the dark unfathomed caves of ocean, or to explore the sands for *lug*. Whether they come to our coasts in pursuit of food, or whether they are pursued by some enemy is uncertain; though the former supposition seems doubtful, from the fact that, on examining the alimentary canal of six of these fishes, no vestige of food was found in any of them. In all, the gall-bladder was very large, and much distended with their green bile. If this appearance is not anormal, it may possibly have some connection with the green colour of the bones. Whatever may be the cause of the migration, the natives are presented with an article of food which is much esteemed on the coast of France, although with us prejudices exist against the green bones.—*Northern Herald, Inverness*, November 22, 1844.

Occurrence of Cypræa moneta at the Land's End. I have been informed that several specimens of *Cypræa moneta*, with the animal alive in the shell, have lately been taken off the Land's End.—*F. Holme*; *C. C. C., Oxford*, December 26, 1844.

Carnivorous propensity of Snails.—One day last July, as I was walking near Stirling, my attention was attracted by a large black snail, which was devouring an earth-worm. When I first observed it, it had swallowed half of the worm, and it ate a considerable piece more while I was watching it.—*Chaloner Greville*; *Islington*, December 30, 1844.

*Exuviation of the common Craw-fish (Palinurus vulgaris).**

By E. CHIRGWIN, Esq.

Two instances have been recently witnessed of what may be called the moulting of the common craw-fish, differing in some respects from the manner in which it is said to take place; I think it may be interesting to state the circumstance as it really happened. Two years since, in the month of July, one was taken in a trammel net, and being disentangled, and held up in the hand by its antennæ, a sensible shudder was given by the creature; immediately after which, it dropped from its shell to the bottom of the boat, leaving its old covering in the hand of its surprised captor, unseparated in any part, and not a joint broken. In August last another was caught in a similar way, and also cast its shell on board the boat. In this instance, as in the former, nothing called attention till after the shell had fallen off, when it appeared that the carapace had been lifted, and was nearly separated from the tail or flap. The new animal was lively and strong, and might be handled by its antennæ, but it was sensible of the slightest touch on any part of the body, which was evinced by its uttering a loud cry, as if in pain. During these months I have taken the craw-fish before the moulting has taken place, and this membrane has been so tough that it could hardly be torn by hard twisting. At this time they are unfit for food, but in a very short time, even when the new shell has not acquired a calcareous state, I consider them in the highest condition. It would seem, therefore, that it is during these months that the long-tailed crustaceans moult, but from finding the exuviæ of other kinds at other seasons of the year, that the different kinds vary a good deal in this respect. Unless, therefore, the casting of their shells in these two instances can be supposed to have been caused or accelerated by the situation and attendant circumstances in which the fish were found, it is evident that no softening or splitting of the shell, or divisions of the joints take place, to enable the animal to extricate itself.

EDWARD CHIRGWIN.

Newlyn.

[The observations of practical men on any branch of Natural History are always valuable, inasmuch as they are not distorted by

* Read before the Natural-History Society of Penzance.

any partiality for particular theories, or preconceived opinions ; though they may be, and frequently are, erroneous, from considering isolated facts as general laws. The foregoing observations of Mr. E. Chirgwin are valuable, therefore, as the experience of one who is practically acquainted with all the fisheries of Mount's Bay, and without any theoretical predilections. Yet there are a few points that require a little explanation.

The experience on the exuviation of the craw-fish, given above, only proves that the shedding of the external calcareous covering takes place during the months of July and August, and not that it is confined exclusively to these periods. For the craw-fish, like other crustaceans, undergoes this process very irregularly, and at different periods of the year. When the young first escapes from the egg, the first shedding is effected within three days, and sometimes within the day ; the second shedding does not occur for three weeks or a month, and then at irregular intervals, increasing in length as the creature increases in age. The young being born in a form entirely unlike the adult, the first and second changes are not merely a shedding of the shell, as it afterwards becomes, for the purposes of growth, but also the means of undergoing the metamorphosis necessary to its taking on the adult form. But, even after the creatures have undergone those changes, which may be deemed metamorphic, they do not immediately assume the adult form, though they have taken on the type of the adult development. Thus, the first shedding occurs so soon after birth, that the second state is the one generally first seen ; this lasts for a few weeks, and another change and exuviation occurs, and again, in about a month, another shedding and change of form occurs, which is the last of the metamorphoses. At this stage, the permanent form makes its appearances. But the different species are so much alike in this young state, that it is almost impossible to discriminate between them. But at each shedding the form alters, and the specific characters become gradually developed. For the crustaceans appear to be formed on a common type, and during growth they become removed from this by the development of some parts, and the obliteration of others, thus assuming their generic and specific characters. Thus, in their early changes, the exuviation is frequent, and even when half grown, they shed their shells several times during the year, but the full-grown animal very rarely does it, that is, only after long intervals ; so that the exuviation in the above cases, during July and August, are only proofs that it occurs during these months, and not that it is confined to them. The mode in which

this process occurs need not be enlarged on here, as it will be fully described in the forthcoming work of Professor Bell, on British Crustacea. But it may be mentioned as varying in different species: in the craw-fish, the first ring of the abdomen is disjoined from the carapace, as Mr. Chirgwin notices, and through this opening the animal escapes. In the crab the same disunion occurs, and the curved sutures on the anterior and inferior edge also become separated, while in the lobster the separation extends along the furrow on the back of the carapace, from the frontal point to where it joins the abdomen. The process of exuviation in the cases mentioned above was probably hastened by the position in which the creatures were held; but though more slowly, it is effected no less surely by the creatures in a state of nature.—*R. Q. Couch; Chapel-street, Penzance, December 19, 1844.*]

*Notice of British Crustacea.**

THE ‘Metamorphosis of Crustacea,’ and the ‘Nidification of Fishes,’ are discoveries that will mark the present Natural-History era through ages yet to come. Both these phenomena have been doubted, and very excusably, by those whose opportunities of observation are restricted to their books; but in both instances, fact has so crowded upon fact, that the arguments and assertions of the incredulous are lost in the light of truth; and to subtle dissertations, showing that “such things cannot be,” is found the incontrovertible answer—“such things are!” The naturalists of the present day are becoming more and more men of enquiry; men who see the advantage of personal observation; men who take but little for granted; men, in fine, who are unostentatiously but unerringly working out the real history, or as a popular writer has it, the “private lives” of animals. A few there are—and those mostly young and inexperienced—still wasting their time with idle technicalities and toilsome endeavours to extract fame from desultory descriptions of supposed novelties, or wearisome dissertations on errors which are thus for a moment—and only a moment—raised from merited oblivion: but such writers are becoming rare; are, in fact, merging into manhood, and its concomitant characteristics.

* A History of British Crustacea, by Thomas Bell, F.R.S., &c. &c. London: Van Voorst. (Nos. 1 and 2 published.)

Next in importance to the observation and record of facts, is the composition of connected works in which the distinctive characters, as well as the habits or economy, of every species belonging to a given tribe, or family, are carefully recorded and compared. Such works were by Scopoli, White, Kirby, and others, emphatically called "Monographs;" and may be regarded, when carefully executed, as carrying out the study of Natural History to its acme of value and usefulness. They are the gems—the treasures of Natural-History literature.

Mr. Bell's 'History of the Crustacea' is one of these monographs, and perhaps no work was ever commenced under more favourable circumstances. The subject is not merely one of great interest, but possesses the very unusual advantage of novelty: for, notwithstanding the labours of our eminent countrymen—Dr. Leach, in their classification, and Mr. Thompson, in their economy and metamorphosis—the Crustacea of Great Britain are less perfectly known than any other class, the individuals constituting which are of equal magnitude and importance. The fact of their residence in the sea has offered a barrier to collecting them, which many have considered insuperable: the large and fleshy bodies have also, in many cases, through want of care in removal, become putrescent and offensive, and have thus deterred others. The great space occupied by specimens in a cabinet has also been considered objectionable, on the ground of expense. The want of good figures, and detailed descriptions, has often been a source of just complaint. Thus several causes, all of them capable of being removed, or already undergoing removal, have operated against the study of Crustacea becoming a favourite pursuit.

It is not our intention to enter on a critique of this welcome publication, but rather to announce its commencement to our readers, and to give it our cordial recommendation. When we say that it is illustrated uniformly with the rest of the beautiful series of which it forms a part, we shall say all that is needful on that point, while the following extracts will give an idea of the value of the letter-press.

The common crab (*Cancer Pagurus*). "It was in the month of June, 1826, that Mr. J. V. Thompson had the good fortune to succeed in hatching the ova of the common crab, and thus, by perfect and satisfactory observation, demonstrated the truth of the theory which his investigation of Zoea had already suggested to his mind, of the true metamorphosis of the Crustacea; a discovery which may rank amongst the most interesting and important that have been made within the sphere of the sciences of observation, not only in the

present, but in any previous age. The extreme difficulty of preserving these little animals alive, and ensuring them a supply of their proper food, has prevented the observations of their subsequent growth from being so satisfactorily carried out as could have been wished; but the doctrine thus established has been confirmed in so many instances by observations on other species of Crustacea, that the metamorphosis of these animals may now be considered as a fixed and incontrovertible truth. The fishery for these crabs constitutes an important trade on many parts of the coast. The numbers which are annually taken are immense; and as the occupation of procuring them is principally carried on by persons who are past the more laborious and dangerous pursuits of general fishing, it affords a means of subsistence to many a poor man who, from age or infirmity, would be unable, without it, to keep himself and his family from the workhouse. They are taken in what are termed "crab-pots," a sort of wicker trap, made, by preference, of the twigs of the golden willow (*Salix vitellina*), at least, in many parts of the coast, on account, as they say, of its great durability and toughness. These pots are formed on the principle of a common wire mouse-trap, but with the entrance at the top; they are baited with pieces of fish, generally of some otherwise useless kind, and these are fixed into the pots by means of a skewer. The pots are sunk by stones attached to the bottom, and the situation where they are dropped is indicated, and the means of raising them provided, by a long line fixed to the creel, or pot, having a piece of cork attached to the free end of the line; these float the line, and at the same time serve to designate the owners of the different pots; one perhaps having three corks near together, towards the extremity of the line, and two distant ones; another may have one cork fastened crosswise; another, two fastened together, and so on. It is, of course, for their mutual security, that the fishermen abstain from any poaching on their neighbour's property; and hence we find, that stealing from each other's pots is a crime almost wholly unknown amongst them. * * * Mr. Richard Couch informs me, that on the coast of Cornwall, 'most of these crabs are sold to the lobster smacks; but, that when brought on shore for sale, those measuring six inches across the carapace are sold for two-pence each; those of eight or ten inches, three-pence; and the largest, from six-pence to eight-pence!' If the crabs are not immediately wanted on being taken out of the pots, they are placed in store pots, which are of the same form and materials as the others, but considerably larger. They are conveyed to great distances, as far, for instance, as

from the coast of Norway to the Billingsgate market, in well-boxes, which are of wood, very strongly constructed, and with holes in all the sides, to admit of continual change of water, as the boxes are drawn through the sea, attached to the vessel.”—p. 63.

Common shore crab (*Carcinus Mænas*). “Its food consists principally of the fry of fish, of shrimps, and other Crustacea, but it will feed also upon dead fish, and almost any other animal substance. Indeed, the most common method of taking these crabs at Poole, where numbers are caught by the fishermen’s children, is by tying a mass of the intestines of either a fowl, or of any fish to a line, and hanging it over the quay; the crabs seize upon this bait, and are drawn up in considerable numbers. Mr. Hailstone states, that they attack mussels, and that he once saw one carrying about on its hand a mussel which had closed its shell upon it. They run with considerable rapidity, and with an awkward sidelong gait; and they lurk in pools of water left by the tide, partially concealed in the sand, but with the anterior part of the carapace, including the eyes, exposed, so as to watch for the approach of their small living prey, on which they spring with great activity. They are, however, very timid and wary, and will not move if they discover that they are watched. They simulate death, if disturbed, as completely as do many Coleopterous insects. The process of exuviation takes place at various parts of the year, from spring to autumn. I have found the female carrying spawn as early as April, and as late as September. The eggs continue to increase in size in this and in the rest of the *Portunidæ*, until the abdomen is forced backwards to an obtuse angle with the body. Like most of the *Brachyura*, this species buries its ova in the sand; and ‘when they are disengaged,’ says Mr. Couch, ‘the crab stands high on the points of its legs, and employs a couple of them, one on each side, in working the loose tendrils to which the ova are attached.’ For the following interesting account of the development of this species, I am indebted to the kindness of the same indefatigable observer. ‘The ova come to life in about forty-eight hours or less. The following are my notes made at the time of observation, on one that bred in captivity. It seems clear that each ovum has two investing coats, one proper to it, the other in which it is enclosed as attached to the parent. The latter has a thread, a portion of which is seen attached to the ovum after it has been thrown off. The ovum bursts on the sides opposite to this thread, and the creature first protrudes the abdominal portion, or that which is behind the carapace, and

which in the ovum had been bent underneath ; so that it escapes backwards. In some it appeared as if the caudal extremity protruded first ; but in most it was the bent portion, and the legs were in general bent up under the thorax. They seemed, however, to find great difficulty in throwing off the loose membrane of the ovum from the thoracic portion or carapace, and almost all failed in doing this effectually, the development, perhaps, going on too rapidly, in consequence of exposure to a warm sun. I suppose, that in the natural state, this is effected in the sand, by creeping backwards, and thereby rubbing it off. The eyes of these young crabs, at their first escape from the ovum, are large and sessile. In one or two instances, I thought I saw antennæ and branchiæ, or at least their projecting extremities ; but I could not decidedly distinguish between them and the legs. The thoracic portion, or carapace, is somewhat rounded, or at least, ovoid. I could see no chelæ, and suppose them not developed. The common legs seem bifurcate at the second joint from the extremity, and ending in a fine point ; or, perhaps, the bifurcation is at the root. The abdominal and caudal portion is long and narrow, and also projecting, much resembling the corresponding portion of the *Nebalia Herbstii*. A considerable change or metamorphosis must take place in these creatures, before they assume their final form, thus confirming the views of Mr. J. V. Thompson on this subject ; though these little crabs differ much from the figures of the common edible crab (*Cancer Pagurus*), as given by that gentleman.”—p. 78.

Notes on the Genus Peronea. By THOMAS DESVIGNES, Esq.

Having captured upwards of 1,900 specimens of the genus *Peronea* (*Curtis*), during the three past autumns, in Whittlebury Forest, I herewith send you a list of them, with a few remarks on those generally called “raised buttons.”

PERONEA (*Spuria*), D.

Asperana	Logiana	Coronana
variegana	favillaceana	—— a new species ?
Boscana	tristana	autumnana
cirrana	reticulana	ramostriana
rufana	latifasciana	albitriana
Schalleriana	plumbosana	umbrana

PERONEA (*Vera*) D.

unicolorana, D.	sericana	fulvostriana, D.
alboflammana	fulvocristana	profanana, <i>Fab.</i>
xanthovittana, D.	albovittana	provittana, D.
albipuncta	consimilana	semiustana
cristana	Tolana	semistriana
subvittana	spadiceana	Bentleyana
Capucina	substriana?	cristalana
sub-capucina, D.	brunnea	fulvovittana
Curtisana, D.	vittana	subcristalana
ruficostana	Chantana	sequana
Desfontainiana	striana	

Remarks on the Peroneæ Veræ, D.

Sp. 1. PERONEA UNICOLORANA.

Var. 1. *unicolorana*, D. This insect has generally been understood to be the *profanana* of Fabricius, but not at all agreeing with his description, I have given it the present name: its colour being uniform dark green, with the exception of palpi, head, and thorax being more or less dirty white; the button very small, varying from a dark to a white dot.

Var. 2. *alboflammana*. Similar to the preceding, with a white dash on the inner margin extending from the base: in some specimens with a very minute dark or white button in the centre of disk.

Var. 3. *xanthovittana*, D. Similar, with a yellow or fulvous dash: palpi, head, and thorax of the same colour.

Var. 4. *albipuncta*. Similar to the last, with the exception of a cream-coloured tuft or button.

Var. 5. *cristana*. Similar to *alboflammana*, but has a white button.

Note. I have two specimens with cream-coloured dash and button; also specimens of the typical insect, with the spadiceous mark; and others with the striana markings.

Sp. 2. PERONEA SUBVITTANA.

Distinct from the foregoing, having an abbreviated white dash from the base of inner margin, not extending to the outer margin; the central tuft subject to vary from a large white or cream-coloured one, to other very minute ones of the same shades.

Sp. 3. PERONEA CAPUCINA.

Var. 1. *Capucina*. This insect was first discovered by the Rev.

Mr. Johnson, in the New Forest: it is entirely blotched with white, but has no white dash.

Var. 2. *subcapucina*, D. The above insect should bear this name, not being so complete as the present one, which has the white dash, and this constitutes its difference.

Var. 3. *Curtisana*, D. Similar to the last, varying in having a very faint fulvous streak extending from the base to the button, which is of the same colour.

Sp. 4. PERONEA RUFICOSTANA.

Distinct: variable, having occasionally a small reddish button.

Sp. 5. PERONEA DESFONTAINIANA.

Var. 1. *Desfontainiana*. Well known and described.

Var. 2. *sericana*, Hub. The same, without a button.

Var. 3. *consimilana*. Similar, but with striana markings on the inner margin.

Var. 4. *albovittana*. Similar, but has a white dash.

Var. 5. *fulvocristana*. Similar, with a fulvous dash and button.

Var. 6. *Tolana*, D. Between *Curtisana* and *Desfontainiana*.

Sp. 6. PERONEA SPADICEANA.

Var. 1. *spadiceana*. Well-known and described.

Var. 2. *substriana*? Similar, with striana markings.

Var. 3. *brunnea*. Smaller than *spadiceana*, much darker, and with a very large dark button: some specimens with red shoulders and striana markings.

Note. This may be a distinct species, the button being much larger than in any other of the genus, with the exception of *P. subvittana*.

Var. 4. *Chantana*. Similar to *spadiceana*, with a white dash and button: I have a specimen with a dark button.

Sp. 7. PERONEA CRISTALANA.

Var. 1. *cristalana*. Well known and described: variable, some being darker than others; the button varying from dark to fulvous.

Var. 2. *fulvovittana*. Similar, with a yellow dash.

Sp. 8. PERONEA SUBCRISTALANA.

Var. 1. *subcristalana*. Somewhat similar to *cristalana*: differs in the usual markings not being white: scarcely variable.

Var. 2. *sequana*. Similar, with a yellow dash.

Sp. 9. PERONEA STRIANA.

Var. 1. *striana*. Well known and described; the stria white.

Var. 2. *insulana*. I did not capture this insect. Similar, with the button white or cream-coloured.

Var. 3. *fulvostriana*, D. Similar to *striana*, with fulvous markings on the inner margin: nearly a distinct dash.

Sp. 10. PERONEA PROFANANA.

Var. 1. *profanana*, Fab. Cinereous, with tuft of scales of the same colour.

Var. 2. *provittana*, D. Similar, with a yellow dash.

Sp. 11. PERONEA SEMIUSTANA.

Var. 1. *semiustana*, Curt. Somewhat similar to the last species, with the exception of a very dark or black patch above the button, and touching the base.

Var. 2. *Bentleyana*. Similar, with a yellow dash.

Var. 3. *semistriana*, D. Similar to *semiustana*, with *striana* markings.

It will be perceived I have endeavoured to reduce the number of species of this beautiful genus of Lepidopterous insects, but have not sufficient specimens to assert the whole of them to be but one variable species.* *P. ruficostana* and *P. cristalana* are very dissimilar, and I think the most *circular* method cannot assimilate them,—to do so, the number of captures must, at least, far exceed mine. Great variations from the type are to be found amongst plants, but such are generally the effects of art, whereas our insects are the genuine productions of nature. There cannot be any objection, in my opinion, to retain the names by which the varieties? are known, and it would

* This conjecture can only arise from their similarity in size. The usual markings attending them may, I think, justly be compared to the ordinary stigma attending the majority of the full bodied moths.

D. means, throughout, names that I have given. When the words *striana markings* are used, I mean those similar to *P. striana*.

show little penetration on the part of the entomologist who could consider himself satisfied as possessing the whole genus, in retaining a pair of *striana*, or *cristalana*, in his collection.

The preceding observations I have made from the ample means afforded me by the number of my captures; if erroneous, I shall feel pleasure in being corrected. I may state, the whole are taken in nearly similar situations: they appear to be more abundant during the prevalence of warm weather, with a south-west wind.

THOMAS DESVIGNES.

2, Golden-square, December 7, 1844.

Descriptions of two new British Moths. Carpopapsa minutana, Hubner. Anterior wings red-brown, an angular band at the base, and a medial fascia, darker; some whitish marks on the costa; the ocellus contains four or five dark streaks; and the whole surface of the wings is covered with transverse markings. Posterior wings dusky. Expansion of wings about six lines. I first took one of this species in 1842, and several were taken by Mr. Bedell, in 1843, on palings in this neighbourhood; it is also in other collections, without a name, or as *Philalcea Mitterbacheriana*, which it much resembles. It corresponds exactly with the German specimens in the British Museum, procured from Dr. Becker, but neither the figure of Hubner (Tort. Tab. 12, fig. 73), nor that of Duponchel (Lepidop. Pl. 250, fig. 9), gives a good idea of it. *Sericoris signatana*. Head, thorax, and anterior wings ashy, the latter with an angular band at the base, and a medial oblique fascia dusky brown. Through this fascia, and extending beyond it outwards, is a thick black curved streak, with a dot underneath. On the costa are several white marks in pairs, and the light parts of the wings are full of small transverse darker lines. Posterior wings dusky. Expansion of wings, $6\frac{1}{2}$ lines. I beat three or four specimens of this species out of a hedge at Sanderstead Downs, July 9th, 1843, and I cannot find that it is in any of the London cabinets, or that it has been previously described. It is a very distinct species, the black streak distinguishing it at once from every other.—*J. W. Douglas; Coburg-road, Kent-road, January, 1845.*

Captures of three new British Moths. Mr. T. H. Allis, of York, has sent to Mr. H. Doubleday, of Epping, three moths, which appear new to the British Fauna: these are, 1st, the *Noctua opima* of Hubner—*Orthosia opima* of modern nomenclature; 2nd, one of the *Pyralidæ*, which Mr. Doubleday believes to be the *P. manualis* of Duponchel, and which was taken near Carlisle; and 3rd, a *Pterophorus*, apparently *P. lithoxydactylus* of Duponchel, taken by the Rev. G. Preston, at Doncaster. I shall feel extremely obliged to Mr. Allis for descriptions of these three novelties, for I think it highly desirable, not only that every addition to the British Fauna should be immediately recorded in 'The Zoologist;' but should be accompanied by such a plain description, in English, as shall enable every reader at once to recognize it.—*E. Newman; 2, Hanover-street, Peckham, January, 1845.*

Capture of Lepidopterous Insects near Peterborough. I beg to offer you a list of some diurnal and nocturnal Lepidoptera occurring in this neighbourhood, taken by myself within the last two years, not including many common sorts. Some of those enumerated may be thought too common to record, but having only tried the sugar test two months, I cannot yet tell how numerous they may be in their respective seasons. I forward the list, on account of the great pleasure I have derived from seeing in your pages captures made in other localities, leading me to suppose that a notice of insects found here, however imperfect, may also be interesting to your readers: if you can find room for it, and should desire further notes, I shall be happy to go on with *Geometra*, and then with some of the other orders.

<i>Pieris Cratægi.</i> Caistor Hanglands.	<i>Graphiphora augur.</i> At sugar.
<i>Vanessa C. album.</i> Grimeshaw-wood.	<i>plecta.</i> Ditto.
<i>Polychloros.</i>	<i>C. nigrum.</i> Ditto.
<i>Hamearis Lucina.</i> The Hanglands.	<i>baja.</i> Ditto.
<i>Thecla Pruni.</i> The Hanglands.	<i>umbrosa.</i> Ditto.
<i>W. album.</i> Westwood.	<i>Caradrina trilinea.</i>
<i>Pamphila Paniscus.</i> The Hanglands.	<i>Orthosia Lota.</i>
<i>Ino Statices.</i> Bedford purlieu.	<i>litura.</i> At sugar.
<i>Anthrocera Filipendulæ.</i> Gardens.	<i>Amphiphya pyramidea.</i> Ditto.
<i>Sesia bombyliiformis.</i> The Hanglands.	<i>Cerigo texta.</i> Ditto.
<i>Ægeria vespiformis.</i> Near Whittlesea Mere.	<i>Lemuris typica.</i> Ditto.
<i>Cossus ligniperda.</i> On willows.	<i>Triphæna interjecta.</i> Ditto.
<i>Clostera curtula.</i>	<i>janthina.</i> Ditto.
<i>reclusa.</i>	<i>Xylina exoleta.</i> Westwood.
<i>Petasia Cassinea.</i>	<i>lithoxylea.</i> At sugar.
<i>Pæcilocampa Populi.</i> December. Near the town.	<i>Mamestra oleracea.</i> Ditto.
<i>Gastropacha Quercifolia.</i> The Mere.	<i>contigua.</i> Garden.
<i>Phragmatobia fuliginosa.</i> Old Sulehay-wood.	<i>testacea.</i>
<i>Eyprepia Russula.</i> Near Caistorfield.	<i>Apamea fasciuncula.</i> Grimeshaw-wood,
<i>Plantaginis.</i> The Hanglands.	on <i>Umbelliferæ.</i>
<i>Lithosia rubricollis.</i> The Hanglands.	<i>latruncula.</i> At sugar.
<i>Nudaria mundana.</i> At sugar.	<i>Acronycta Aceris.</i> Bred.
<i>Heliophobus Popularis.</i> Attracted by light.	<i>Ligustri.</i> Bred.
<i>Agrotis suffusa.</i> At sugar.	<i>Eremobia ochroleuca.</i> Grimeshaw-wood.
<i>radiola.</i> Ditto.	<i>Bryophila perla.</i> On houses.
	<i>Thyatira derasa.</i> Hedges.
	<i>Euclidia glyphica.</i> Caistor Hanglands.
	<i>Mi.</i> Caistor Hanglands.

The following have been taken in this district by others:—*Leucania obsoleta*, at sugar; *Polyommatus Arion*, Barwell-wold; *Papilio Machaon*, the Mere; *Leucophasia Sinapis*, the Hanglands,—formerly plentiful, now scarce; *Apatura Iris*, Monks-wood, and the Hanglands.

I have duplicates of several of the above, and should be happy to exchange with tyros in Entomology, like myself, whose cabinets are not abundantly supplied, as I cannot presume to offer any advantages to old hands, whose desiderata are “few and far between.” P.S. I find the sugar and beer to answer well, but better in open places than in woods hitherto; trees standing a little distance apart, in an old hedge-row,

seem the best, and the side sheltered from the wind succeeds better than if exposed to the wind, and as much facing the west as possible. I wish the greatest prosperity to your journal.—*John Whitwell; Long Causeway, Peterborough, Sept. 16, 1844.*

Captures of Lepidopterous Insects in the New Forest. On the 14th of last September, I started in company with my two friends, Mr. Grant and Mr. Sheppard, for a ten days' excursion to the New Forest, full of hope and expectation of the grand captures we intended to make, especially amongst the *Peroneæ*; and considering, perhaps, the very dry and unproductive season, and the prevalence of easterly winds when there, I must not, I suppose, complain of the captures that fell to my lot. Beating for buttons is no sinecure, every day, from nine in the morning till five in the afternoon, with a thick stick, like a broom-handle (as a thinner one is of no use, that being knocked to pieces in a few hours), and out again at six, sugaring the trees, and sometimes not returning to the house till eleven or twelve at night. At the sugar I met with the following :—

Agrotis æqua, male and female	Agrotis puta, wasted
Charæas nigra, male	Polia seladonia, some very fine and dark
fusca, female	Orthosia flavilinea
Caradrina glareosa, female	litura
The above four species, including one	lunosa
æqua taken on the evening of the 17th,	Charæas cespitis, males flying round lamp;
all in fine condition	besides many other common autumnal
Segetia neglecta, mostly wasted	species.
Agrotis suffusa, in plenty	

The first two or three nights, moths were in tolerable plenty at the sugar, after that they became scarce, the wind changing from south-west to north-east. By beating, I took the following species :—

Peronea cristana	Sarothripus ramosanus
cristalana	undulanus
Desfontainiana	Ilicanus, and varieties
consimilana	Leptogramma irrorana
Bentleyana	squamana, and all the other varieties
insulana	Anacampsis Lyellella
striana	Tinea semifulvella
brunneana	Gracillaria sulphurella
spadiceana	Plutella scabrella, in plenty, but wasted;
vittana	&c. &c.
fulvovittana	
ruficostana, and a few other varieties.	

I met with very few Coleoptera: the lateness of the season, combined with the great drought, was no doubt the cause. *Platypus cylindrus*, *Sylvanus unidentatus*, *Elatер sanguineus*, and *Bitoma crenata*; the latter, in plenty, were about the best.—*Samuel Stevens; 38, King-street, Covent Garden, January 13, 1845.*

Captures of Lepidopterous Insects in Scotland. I beg to hand you a list of some of the rarer Lepidoptera, which I captured during the past summer, in Scotland.

Hipparchia Melampus. Kinloch Rannoch, Perthshire. *Hepialus Velleda.* Inverary and Perthshire.

Blandina. Ditto, and Isle of Arran. *Clostera reclusa.* Ben-Nevis and Perthshire. *Polyommatus Artaxerxes,* Perthshire.

- Notodonta Ziczac. Fort-William.
 Leiocampa dictæoides. Perthshire.
 Eriogaster lanestris. Ben-Nevis.
 Euthemonia Russula. Perthshire.
 Nemeophila Plantaginis. Ditto.
 Setina irrorella. Oban.
 Charæas cespitis. Isle of Arran.
 Graminis. Fort-Augustus.
 Agrotis valligera. Ayrshire.
 Cursoria. Ditto.
 Tritici. Ditto.
 Graphiphora Dahlii. Isle of Arran.
 Hadenæ adusta. Ditto.
 remissa. Argyleshire.
 Cucubali. Ditto.
 Apamea nictitans. Isle of Arran.
 Celæna Haworthi. Ditto.
 Actebia præcox. Ayrshire.
 Miselia conspersa. Isle of Arran.
 Ceropacha duplaris. Dingwall.
 Bombycia Viminalis. Perthshire.
 Plusia interrogationis. Golspie and Perth-
 shire.
 Erastria fuscua. Dingwall.
 Stilbia anomalata. Golspie.
 Psychophora trepidaria. Schechallion
 mountain.
 Speranza sylvaria. Black Forest.
 Bupalus Piniarius. Pitlochrie.
 Ellopiæ fasciaria. Rannoch.
 Venucia cambrica. Ben-Nevis and Isle
 of Arran.
 Cidaria munitata. Ben-Nevis and Perth-
 shire.
 latenaria. Ditto.
 Harpalyce tristata. Ditto.
 Electra Populata. Isle of Arran and
 Perthshire.
 albocrenata, rufitata var. Pitlochrie.
 Xerene plumbata (Curtis), var. of rubigi-
 nata. Isle of Arran.
 Ypsipetes elutata, var. ? Ditto.
 Charissa obfuscaria. Oban and Inver.
 Aplocera flavicinctata. Inchnadamph
 and Rannoch.
 Aplocera cæsiata, var. Ben-Nevis, Golspie,
 and Rannoch.
 Thera simulata. Isle of Arran.
 Juniperata. Ditto.
 Coniferata (Curtis). Fort Augustus
 and Golspie.
 Operabia filigrammaria. Isle of Arran.
 Eupithecia sobrinata. Ditto.
 Strobilata. Ditto.
 plumbata. Rannoch.
 Emmelesia ericetata. Inver and Rannoch.
 blandiata. Ben-Nevis and Rannoch.
 bifasciata. Isle of Arran.
 Acidalia commutaria (Hub.) Black Forest.
 fumata (Dale). Ditto.
 Macaria liturata. Inverary.
 Scopula fuscua. Perthshire.
 Margaritia uliginosalis. Ben-Nevis and
 Perthshire.
 Tortrix galiana. Perthshire.
 unitana. Golspie.
 Lozotænia cruciana. Fort-Augustus.
 Amphisa Gerningiana. Rannoch.
 Antithesia Weaverana. Inverary.
 Orthotænia arbutana. Black Forest.
 alternana. Ditto.
 cæspitana. Ditto.
 undulana. Ditto.
 micana. Golspie.
 Bentleyana. Schechallion Mountain.
 subsequana. Inchnadamph.
 Peronea Logiana. Argyleshire.
 Argyrotoza Conwayana. Inverary.
 Eupœcilia angustana. Fort Augustus.
 Yponomeuta Curtisella. Inverary.
 Crambus inquinatellus. Saltcoats.
 margaritellus. Black Forest.
 Pinetellus. Black Forest.
 Ablabia quadripunctata. Ben-Nevis and
 Rannoch.
 Euplocamus monellus. Isle of Arran.
 Microsetia guttella. Inverary.
 Gluckella. Ditto.
 Lampronia prolabella. Ditto.
 Gracillaria rufipennella. Ditto.

—Richard Weaver; *Pershore-street, Birmingham, November, 1844.*

Habits of Fossorial Hymenoptera. I think the following observations, illustrative of the economy of some species of Fossorial Hymenoptera, may prove sufficiently

interesting to find a corner in 'The Zoologist.' *Tachytes pompiliformis* is a well-known insect, belonging to the family Larridæ. It is abundant in many sandy situations, particularly on Hampstead-heath. Mr. Shuckard records his having captured it frequently, conveying a small sandy-coloured caterpillar, a circumstance which I have frequently noticed. Last summer I found the species abundant at Weybridge; here its prey was a small species of grasshopper; I captured several with the same prey. *Cerceris arenaria*; this is an abundant species, belonging to the family Crabronidæ; it provisions its nest with different species of Curculionides. Mr. Shuckard says, "on a small *Curculio* of the genus *Strophosomus*;" probably he had not observed it with any other species, but in different situations its prey will be found to differ; its usual prey is *Strophosomus pilosellus*: in Hampshire I found it conveying *Otiorynchus sulcatus*; at Charlton I found it select *Balaninus nucum*; I have also captured it with *Otiorynchus ovatus*. Thus, observation proves that its economy is very varied, in respect to the species selected for the food of its young. St. Fargeau is quite in error, in stating that the insect possesses the instinct to select the beetles which have been recently disclosed, and have their elytra, &c. soft. I found *Otiorynchus ovatus* and *O. sulcatus* somewhat difficult to pierce with a pin, and observation has proved, that the insects are selected without any regard to their recent development; the moisture of the earth would, in eight or ten days, render them soft, and suitable for the young larvæ, which would be hatched about that time. *Crabro brevis*: this is one of the small black species. I discovered some numbers forming their nests in a perpendicular sand bank; and what I was pleased to observe was, that they were provisioning their nests with different species of *Haltica*: this is, I believe, only the second British fossorial insect hitherto discovered to prey upon Coleoptera. *Crabro exiguus*: a small black species; provisions its nest with minute Diptera. *Crabro subpunctatus*: a yellow-banded species, I captured conveying gnats. All the species of the genus *Crabro*, which I had previously detected with their prey, selected Diptera; thus we find here a diversity of habit analogous to that observed in the genus *Cerceris*.—*Frederick Smith; Newington, December, 1844.*

Apathus Barbutellus bred in a nest of *Bombus pratorum*. On the 14th of June last, a boy brought me a nest of *Bombus pratorum*, containing about thirty neuters, and a quantity of comb. On placing it under a bell-glass, I was surprised by seeing a bee, with a white tail, apparently busily employed in releasing others from their cells, and on more closely examining, I found three males and seven females of *Apathus Barbutellus*, all, excepting the one at work, having so lately left their cells, that their hair was still of a dirty white, having scarcely a tinge of black or yellow showing; the female, which had arrived at maturity, is a very fine specimen, and is in my cabinet. It appears to me that they are not able, of themselves, to open their cells, as after letting the neuters fly, and killing the specimens of *Apathi*, no more came out, although some of the cells appeared as forward as those did from which the others came out.—*W. H. L. Walcott; 8, Buckingham-place, Clifton, Bristol, January 10, 1845.*

On the habits of some Chalcidites. The species of *Callimome* destroy the gall-forming insects belonging to the genera *Cynips* and *Cecidomyia*, and De Geer made the following observations on *C. affinis* (Ent. Mag. i. 133), while introducing its ovipositor into an oak-gall. It began by extricating the ovipositor from between its sheaths, placed it then in a position perpendicular to the body, and to the surface of the gall, so that its point touched the exterior part of the gall, into the interior of

which it penetrated by degrees, till the point of its body touched the surface of the gall. After this operation it elevated and depressed its ovipositor, as if to seek the cell of the larva, or the larva itself, that it might place its eggs beside it. It made three holes in the gall, in three different places, and having finished them, it flew away. M. E. Perris, in the 'Annales de la Société Entomologique,' ix. 89, has described the habits of two species of Callimome. To the first he gives the name of *Cynips Papaveris*, and to the *Cynips*, which it infests, that of *Diplolepis Papaveris*. This latter insect inhabits galls on *Papaver dubium*, *Linn.*, and is also attacked by *Ormyrus tubulosus*, another species of the Chalcidites. Before the genus *Ormyrus* was described by that name, it had received the appellation of *Cyrtosoma* in Curtis's 'Guide to an Arrangement of British Insects.' It then acquired the name of *Siphonura* in Germany, and that of *Periglyphus* in Sweden, and now, in France, Perris, not aware that it had been before noticed, has described *Ormyrus tubulosus* by the name of *Cyrtosoma Papaveris*. Having been reared from galls attached to the trunks of oak-trees, it probably infests more than one species of insect. *Ormyrus punctiger* has also been reared from oak-galls, but is found within the arctic circle far above the oak region. This genus connects the Torymidæ with the Eucharidæ. The name *Cyrtosoma* is characteristic of its shape, *Periglyphus* of its sculpture, and *Siphonura* of the structure of the abdomen in the female. The other species of Callimome is described by Perris as *Cynips Urticæ*; it is parasitic on *Cecidomyia Urticæ*, *Perris*; a fly that forms galls on *Urtica dioica*, *Linn.* This *Cecidomyia* is also the prey of *Eulophus erinicornis*, *Perris*, and a species of *Tetrastichus*, perhaps *T. Prosymna*, but his description of this insect, of the two species of Callimome, and of *Eulophus Ulicis*, are not sufficiently minute to enable me to identify them. This *Eulophus* destroys *Apion Ulicicola*, *Perris*, a beetle that forms galls on the *Ulex nanus*. The eggs are hatched in these galls, and the latter serve to nourish the larvæ, which live through the winter; in the spring they change into pupæ, and the beetle appears in May or June. When the grub is about half-grown, the *Eulophus* deposits five or six eggs in the cell wherein it is enclosed, and it becomes the prey of the larvæ that are hatched from these eggs. The pupa, like the larva of the *Eulophus*, is white, and is enclosed in a dry metallic-black membrane. The metamorphose of some pupæ occurs in June or July; others do not change till the end of the following spring, so that the life of the insect, from the egg-state to the beetle-state, is twenty-one months in duration. In the beginning of July, I reared from a large oak-gall, above one inch in diameter, twenty specimens of *Teras terminalis*, *Hartig.* (*Diplolepis Quercus-terminalis*, *Fab.*). About a month afterwards, the same gall produced a male and a female of *Megastigmus dorsalis*, the parasite of the above-mentioned *Cynips*, which is also infested by a species of Callimome. There are several other species of Chalcidites that destroy the Cynipites; thus, *Monodontomerus stigma* and *Callimome hedeguaris* have been reared from the galls of the dog-rose, *Callimome Roboris*, from the galls formed by *Cynips aptera*, *Eurytoma Abrotani* from the galls of the bramble, *Decatoma biguttata* and *D. obscura*, from oak-galls. *Teras terminalis* is also infested by *Decatoma biguttata* (*Eurytoma signata*, *Nees*). This last insect likewise destroys *Neuroterus petiolatus*, *Kaltenbach*, which is attacked by two other species of Cynipites, *Synergus rufiventris*, *K.* and *Synergus parvus*, *K.*, and two Pteromalidæ; one of them is *Mesopolobus fasciiventris* (*Pteromalus fasciculatus*, *Forster*). *Cynips Quercus-gemmæ* is another victim of *Decatoma biguttata*. *Andricus scutellaris*, *K.*, forms galls on *Acer platanoides*, and is infested by *Mesopolobus fasciiventris*, and by a spe-

cies of *Pteromalus*. The latter part of these notes were extracted from Forster's Monograph of the Chalcidites.—*Francis Walker; Grove Cottage, Southgate.*

Parasitism of Pteromalus domesticus. In addition to *Lozotænia Xylostæana*, which I have observed to be infested by this insect, I believe that it destroys the species of *Anobium*, for I have frequently seen it on decayed wood, and also on a floor perforated by that beetle. This fly, like *Cyrtogaster vulgaris* and *Pteromalus tenuis*, lives throughout the year, being torpid during the cold weather, though the occurrence of a mild day often draws it from its retreats.—*Id.*

Parasites of Microgaster glomeratus, Linn. This insect, ordained to limit the increase of the common large white cabbage butterfly (*Pontia Brassicæ*), is, in its turn, kept within due bounds, by being subject to the attacks of two minute parasites, *Tetrastichus Rapo*, and a small species of the *Ichneumonidæ Genuini*. From some cocoons that I had collected, many specimens of the *Microgaster* emerged during the first week of October, and about one month afterwards, a few of the *Ichneumons* above-mentioned made their appearance. The caterpillar of the same butterfly is also infested by three species of *Pteromalus*, *P. puparum*, *P. omnivorus*, and *P. carus*.—*Id.*

Occurrence of Curculionidæ in Devon and Cornwall. From upwards of one thousand specimens of *Curculionidæ*, the result of five months' diligent research in Devon and Cornwall, during the past summer, I select the following as most worthy of notice. Some of them, it will probably be observed, are common in other localities; but such are merely admitted on account of their having appeared in greater abundance than usual, and in order that the subjoined list may give a more perfect idea of the *Curculionites* indigenous to the West of England.

Cossonus Tardii. In great profusion along the south coast of Cornwall, especially near Fowey and St. Anstle: also at Mount Edgecumbe, in Devonshire. (Zool. 702).

Gymnaëtron Veronicæ (Germ.) Treglith, near Launceston, a single specimen.

Sphærulea Lythri. Exceedingly abundant throughout the whole of the two counties, more particularly on the south coast, where it occurs by tens of thousands.

Orobitis Cyanea. At Mount Edgecumbe, but rare.

Cæliodes subrufus (Gyll.) Abundant on oaks throughout Devonshire.

Ceutorhynchus Quercus, guttula, rubicundus, and ruber. Also abundant.

Nedyus contractus, Cochleariæ, hæmorrhoidalis (at Whitsand Bay, but rare), *floralis, impressicollis* of Little. (This was first discovered by the Rev. W. Little, in Scotland; my own specimen, which I captured on the banks of the Tamar, being, as far as I can ascertain, the only instance of its having occurred in this country). *Ericæ, ovalis, pollinarius, viduatus, melauostictus, and marginatus.*

Rhinonchus tibialis and bruchoides. Both tolerably abundant, especially the latter, which appears to inhabit the common *Polygonum Hydropiper*.

Pachyrhinus Comari. Not common, but distributed, nevertheless, throughout the two counties.

Pachyrhinus Waltoni (Schön.) Also in abundance on *Polygonum Hydropiper*. It corresponds to *Pach. velaris (Gyll.)* of British cabinets, which insect, I understand, so far as has yet been discovered, does not inhabit England. The present species has been called "velaris" by mistake, it is properly the "*Waltoni*" of Schönherr.

Hydronomus Alismatis. Banks of the Tamar, in June.

Hypera dissimilis. Very abundant, in June, under the stones of the famous pebble-ridge at Northam Burrows, near Bideford, in company with *Otiurhynchus ligneus* and

Simplocaria semi-striata, but never on the side facing the sea. They occurred by hundreds, and appeared to exist, more or less, under every stone.

Omius sulcirostris (*Schön.*) In tolerable plenty near Plymouth, in May, especially at Mount Edgcumbe (*Zool.* 702).

Strophosomus squamulatus. This insect and *Sciaphilus muricatus* appear to be two of the commonest in the West of England. Wherever I searched, whether on the coast, or inland, they were sure to occur; and in the early part of the season, especially, they were most abundant.

Sitona Cambrica. Widely distributed throughout Devonshire, but apparently less abundant in Cornwall.

Polydrusus undatus, *cervinus*, and *chrysomela*. All tolerably common, especially *cervinus*. The last appears almost peculiar to the coast, where I brushed it off the fine grass, growing on the most exposed rocks, facing the sea.

Cleonus nebulosus. In the greatest profusion on the sand-hills at Braunton Burrows, near Bideford, in June.

Rhinocyllus latirostris. Whitsand Bay, on the south coast of Cornwall, where, in the month of May, they appeared by thousands, frequenting the thistles growing on the sides of the cliffs. Every plant, for miles, was positively infested with them; and on several occasions I took fifty or sixty specimens, by shaking even a *single* plant over my net. The insect is considered rare, I believe, in many parts of England.

Apion. Of this genus I captured, in all, not more than twenty-five species; and in very few instances did *any* occur in actual abundance. On the contrary, the greater number were decidedly rare; and I may here remark, that many of the species which I have captured in almost every other part of England in profusion, I did not meet with at all, either in Devonshire or Cornwall, during the whole summer. For instance, of the three species, *Pomonæ*, *Rumicis* and *æneum*, which I have usually, in other localities, taken in abundance, I have not so much as a single example. The only ones which I observed in any profusion were *Radiolus*, *Carduorum*, *rufirostre*, *striatum*, *virens*, *flavipes* and *apricans*. The following, however, I observed, although sparingly, in both counties:—*Apion subulatum*, *curtirostre*, *tenue*, *seniculus*, *violaceum*, *hæmatodes*, *frumentarium*, *Onopordi*, *Hookeri*, *Ervi*, *Loti*, *Kirbij*, *ebeninum*, *Viciæ*, *Pisi*, and *subsulcatum*.—*T. Vernon Wollaston; Jesus College, Cambridge, November 17, 1844.*

Capture of Coleoptera in the Scilly Islands. In a visit to the Scilly Islands during September, I captured the following species of Coleoptera, in addition to those enumerated in the 'Entomological Transactions,' vol. ii. p. 58.

<i>Odontonyx rotundicollis</i>	<i>Calandra granaria</i>
<i>Amara nitida</i>	<i>Aleochara 2-maculata</i>
<i>Harpalus notatus</i>	<i>Tachinus pullus</i>
<i>Necrophorus Vespillo</i>	<i>Staphylinus cantianus</i>
<i>Oiceoptoma rugosa</i>	<i>Philonthus lituratus.</i>
<i>Cryptophagus Abietis</i>	<i>Raphirus nitipennis</i>
<i>Latridius porcatus</i>	<i>Cafius fucicola</i>
<i>Byrrhus sericeus</i>	<i>Gyrohyphnus linearis.</i>
<i>Aphodius contaminatus</i>	

Of the *Odontonyx* I took a single specimen on Tresco; the denticulations on the claws very distinct, at least on those of the anterior and posterior tarsi; for the intermediate ones I cannot answer, as they were broken off. I am informed by Messrs.

White and Doubleday, of the British Museum, that all the specimens standing as *Odontonyx* in the cabinets with which they are acquainted, appear to be only small specimens of *Olisthopus*, and have no perceptible denticulations; in my insect, the thorax is wider at the base than in *Olisthopus*, and the hinder angles much less rounded; the elytra, also, are wider and flatter, and less rounded at the tip; and the whole insect is darker in colour. There appeared almost an entomological interregnum in the islands, as my captures were not numerous either in species or individuals, and mostly immature specimens; and I failed to secure any specimens of *Remus sericeus*, which I discovered on my previous visit. I have no doubt that a visit to the Isles during *the season* would amply repay an entomologist.—*F. Holme; C. C. C. Oxford, December, 1844.*

Addendum to the 'Synonymy of the Perlites, by Edward Newman,' published in the Mag. Nat. Hist. for 1839. By EDWARD NEWMAN.

Sp. 1. ISOGENUS INFUSCATUS. *Newman.*

The antennæ are about half as long as the body, rather slender, and composed of sixty-eight joints, which are so short and so closely compressed together, especially towards the base, that the sutures separating them are only perceptible under a lens of high power: the basal joint, which, in accordance with general structure, is much larger and stouter than the rest, is black; the remaining sixty-seven joints appear of a dingy-brown colour, paler beneath. The head is broad and flat, with very prominent lateral eyes, and three transparent ocelli: its colour is black, with a yellow patch on each side, surrounding the base of the antenna, and extending along the anterior margin of the eye. The prothorax is much narrower than the head; its transverse and longitudinal diameters nearly equal; but its posterior narrower than its anterior margin; both are straight. All the wings are opaque, and smoky-black, with the costal margin yellow: in the fore-wings, this yellow margin, occupying the space between the costal and subcostal nervure, is traversed by seventeen transverse nervures, twelve of which, nearest the base, are nearly direct, five towards the apex very oblique. The body is somewhat brown above, and dingy-yellow beneath. All the legs have the coxæ and the basal portion (extending beyond the middle) of the femora yellow, the apical portion of the femora black; the protibiæ are entirely black, the meso- and meta-tibiæ black at the extremities, and yellow in the middle; all the tarsi are black. The caudal setæ are rather shorter and rather stouter than the antennæ, slightly hairy, and composed of twenty-five joints; those nearest the base are very short, and closely united. The expansion of the wings is 1.75 inch.

Inhabits Hong Kong, China. Collected in that island, and presented to the British Museum collection, by John Charles Bowring, Esq., of Hong Kong.

Obs. This insect can scarcely be referred to *Isogenus*, as I ventured to restrict that genus in the paper to which this forms an addendum, and in which I described the present species from an imperfect specimen in the cabinet of the Rev. F. W. Hope.

Sp. 2. CHLOROPERLA PRASINA.

Both the antennæ are broken, so that their original length and number of joints cannot be ascertained; the remaining joints are nearly equal in length and breadth; their sutures are very evident; their colour is faded green. The head is flat, and of a green colour, the eyes being prominent and black; the ocelli *three*, and colourless. The prothorax is flat, rather narrower than the head; its transverse diameter slightly the greatest, its anterior margin nearly straight, posterior rounded, colour green. The fore-wings are glossy, and of a delicate pea-green, the nervures somewhat darker, the hind-wings are more hyaline, but delicately tinted with green, the costal half is glossy. The entire body, legs, and caudal setæ appear to have been green, although now faded; the setæ scarcely exceed a fourth of the body in length; they are composed of thirteen joints. Expansion of the wings, 2 inches.

Inhabits New Zealand. In the cabinet of Mr. Saunders. It is necessary to observe, that Mr. Saunders having placed many Australian insects in the hands of Mr. Gray, of the British Museum, for description, that gentleman has kindly allowed me to publish those which belong to families I have endeavoured to elucidate.

Obs. This large and striking species agrees but indifferently with the genus *Chloroperla*, or, indeed, with either of the restricted genera of *Perlidæ*, thus showing how dangerous is the task of generic subdivision.

Sp. 3. CHLOROPERLA CYRENE.

The antennæ are nearly as long as the body, and, in comparison with congeneric species, rather stout; the joints, forty in number, are somewhat oval, so as to give the antenna, when viewed under a lens of moderate power, rather a moniliform appearance. The head is not so much flattened as in many species, neither are the eyes very prominent: the ocelli are *three*. The prothorax is rather wider than the head, and nearly quadrate, but its transverse diameter is slightly

the greater; all the angles are acute. The caudal setæ are very short and incurved; their joints are fourteen in number. The antennæ, head, and every part of the body, are intense black; the legs are black, excepting a yellow space which occupies nearly the basal half of each tibia, but not exactly so, the base itself being black: the wings are semi-opaque, suffused with black. Expansion of the wings, 1 inch.

Inhabits New Zealand. In the cabinet of Mr. Saunders.

EDWARD NEWMAN.

Microscopical Society of London.

January 15, 1845.—PROFESSOR BELL, F.R.S., &c., President, in the chair.

A paper, by John Quekett, Esq., Assistant Conservator of the Museum of the Royal College of Surgeons, on Certain Peculiarities in the Structure of the Feathers of the Owl Tribe, was read. After some preliminary observations, Mr. Quekett described the ordinary structure of the wing-feathers of birds, as consisting of three parts, viz., the quill or barrel, the shaft, and the vane. The latter of these is composed of horny filaments, termed barbs, from the edges of which a number of other very minute filaments are given off, which are called barbules, which latter have also, in some cases, other barbules arising from them, to which he gave the name of barbutelles. The office of the barbules is to hook the barbs together (for which purpose they are admirably adapted, both by their structure and position), and thus to afford that degree of adhesion between the parts of the wing, necessary to enable it to support the bird in the act of flying. In the feathers of birds which do not fly, these barbules do not exist, and they are consequently loose and flowing. In the feathers of the owl tribe, another peculiarity obtains. In these, on the upper surface of the wing and other feathers, besides the usual apparatus of barbs and barbules, an additional series of filaments is developed, which not only serves to keep the adjacent barbs together, but also rising above the outer surface of the vane, forms a kind of down or nap upon it, the inner surface being as in other birds. This peculiarity causes the flight of the owl to be without that noise which attends the progress of birds whose feathers have the usual structure, and thus enables it to secure its prey, which otherwise

might be alarmed, and make its escape before it could be pounced upon by its unsuspected enemy.

Another paper, by Edwin J. Quekett, Esq., entitled *Remarks relating to the Examination of Guano by the Microscope*, was read.

The author commenced by stating, that in consequence of the constant adulteration of Guano, he was induced to seek some means by which the genuine might be easily distinguished from the adulterated, without the necessity of the lengthened and expensive process of chemical analysis; and he had endeavoured to make the microscope the means of effecting this object. Viewed as an opaque object, Guano appears to consist of particles of an earthy-brown colour, mixed with crystalline bodies of various sizes, some of which appear to be particles of sand, and others to be crystals of salts, of some kind. The proportion of this crystalline matter to the brown amorphous substance, differs according to the locality whence the Guano has been procured; so that the Ichaboe Guano may be readily distinguished from the Peruvian, the former having much more of the crystalline matter than the latter. It however happens, that the goodness of the Guano does not depend on the presence or absence of this crystalline matter, and consequently it forms no criterion of its value. But although the microscope will not enable us to determine accurately the value of that substance, it is quite capable of determining whether it has been adulterated with foreign matters or not. Upon viewing it as a transparent object, the nature of many of the bodies composing it becomes apparent; and it is found to consist of organized, crystalline, and mineral matters. The organized appear to be fragments of dried flesh, either of birds or fish, minute fragments of shells, spicula of sponges, and (especially in that from Ichaboe) many specimens of animalcules of various kinds. The crystalline and mineral substances are found not only in the mass, but also occupying the place of the medullary canal of bones; the bones themselves having, in most cases, been destroyed by decomposition. By analysis, the crystalline matter is found to be composed of sulphate of potass and ammonia. Mr. Quekett then entered into the investigation of the probable sources whence these various substances may have been derived; and came to the conclusion that they are furnished either by the dead bodies of the birds themselves, or from the substances upon which they have fed remaining in a half-digested state in the excrementitious matter of which the great mass of the Guano is composed.

Bat flying in winter. In returning home just now, through the High-street, I have been amused by observing a bat of the smaller kind flitting to and fro in the neighbourhood of the Town Hall, as briskly as if it were midsummer. I had not time to remain and watch it.—*Thomas Trapp*; 1, *Church-street, Southwark, January 6, 1845.*

Anecdotes of the Weasel. The weasel has already been the subject of several notices in 'The Zoologist,' still I think the following instances of its courage and strength, which fell under my own observation during the past summer, may be worth recording. On the 23rd of April, while near a brook, I observed something moving slowly through the grass, in the direction of the brook, but at a considerable distance from me. There was a hay-stack in the field from which it had apparently come. I walked on with a view to intercept it, and on approaching, I could see it was a weasel dragging something along; it had, too, by this time, observed me, for it was evidently using every effort to make the brook, but as I also quickened my pace, it was unable to escape with its prey, and therefore relinquished that to secure its own retreat to the bank. On coming up, I found the weasel had been dragging along an uncommonly large domestic rat. Now, when we consider the well-known daring of that animal, I think the *courage* of the weasel may be considered as fully established. The following, which occurred to me at the beginning of July, affords ample proof of its *strength*. Whilst riding, I observed, at a distance of about one hundred yards, something moving on the road (a declivity), which at first I took for a partridge rolling itself in the dust; but on getting nearer, I could see it turn completely over. This made me approach with more caution, until I got within twenty yards, when I perceived there were two animals, one of these I could distinguish to be a rabbit, which the other had seized by the shoulder, or side of the neck, I could not tell which; as I witnessed their struggles, I saw them roll over three different times; afterwards the weasel (for such it was) very adroitly sprung upon the rabbit, and seized the back of its neck. The rabbit then uttered a most piteous cry, but made no further resistance. I now rode forward, and nearly reached the spot, before the weasel would quit its prey, and even then it did not move more than three or four yards before it turned round, as if "unwilling to stay, yet loath to depart;" at last, however, it withdrew to the adjoining hedge. The poor rabbit seemed literally bewildered, and remained just as the weasel left it, as if deprived of the power to move. I dismounted, expecting to secure it, but just as I was in the act of doing so, it made a sudden start, and escaped me, but I doubt much whether it would ultimately escape the weasel. I do not think the rabbit was *quite* full-grown, but certainly not far from it; and had I not witnessed this scene, I could not have believed that an animal so small as the weasel could have successfully contended against one so much its superior in strength and magnitude. What I have stated will, I think, clear the weasels of the charge of *fascination* which I have heard imputed to them; and the only solution that occurs to me is, that the weasel, after having seized its prey, pertinaciously retains its hold until the other becomes exhausted by its unavailing efforts to regain its freedom.—*Wm. Turner*; *Uppingham, January 6, 1845.*

Food of the Hedgehog. With regard to the hedgehog's guilt in devouring eggs of poultry or game, I can only state, that I have several times taken these animals in traps baited with a hen's egg, intended to ensnare carrion crows; but whether the hedgehogs had walked into the trap inadvertently, or whether they actually wished to obtain possession of the egg, I cannot say. The inference is certainly against them.—*Archibald Jerdon*; *Bonjedward, January 9, 1845.*

Carnivorous propensity of the Hedgehog. That this animal is the subject of some "vulgar errors," may be perfectly true; but that it is carnivorous, I feel absolutely convinced. Many years ago I had opportunities of watching the animal, having captured and kept for a short time several individuals. They fed readily from the very first, and in particular some, to whom it was offered, drank milk from a saucer most greedily. The common garden shell-snails appeared very acceptable morsels, being cracked with the utmost ease (if not too large for the mouth), and champed down with the greatest gusto. Mr. Bury expresses a doubt (Zool. 818), whether the hedgehog will eat eggs; but I would suggest, that his experiment is not conclusive. He states having offered his urchin "a bantam's egg;" but I believe those eggs have not unfrequently very strong shells; certainly I have occasionally met with eggs, the shells of which would puzzle a larger animal than a hedgehog not having the *που στω* for making the first fracture, nor the power of striking, as a bird, with its beak. If Mr. Bury would select a thin-shelled egg, or one with a cracked shell, perhaps the result would be different. To prove the carnivorous propensities of this animal, I may mention two circumstances, not indeed within my own knowledge, but of which I was informed, from an authority to be relied upon. In the first instance, a gamekeeper, having for some nights lost one of a brood of pheasants he was rearing under a hen, confined the latter to a corner of the coop, and set a rat-trap, wherein next morning he found a hedgehog; thus convincing himself, as he desired, what was the depredator. The other instance, of hedgehogs being frequently caught in nets placed to intercept rabbits, though not so conclusive, certainly affords strong ground for suspicion. The bank, in which rabbits abounded, was close to a piece of water, and the nets were set between the burrows in the bank and the uplands, so that the only apparent temptation to the hedgehogs was either the water, or the young rabbits.—*A. Hussey; Rottingdean, January, 1845.*

Carnivorous propensity of the Hedgehog. A few summers ago I placed a hedgehog in our garden, which being walled round, I was certain he could not escape from; believing then in his innocence, and fancying to myself the good he might do in the way of regaling himself upon beetles, and other *vermin*. It chanced, however, that a brood of young ducks, with their foster-mother, a hen, the latter under a coop, were also placed there. Not many days elapsed before two or three ducklings were missing; who the thief could be was a mystery, still the ducks disappeared, one by one, or were found dead and mutilated. A cat was suggested as the aggressor. No. A rat! No, not likely. It could not be the hedgehog? Oh! certainly not. However, the remains of a dead one being left one morning a short distance from the coop, I fastened it in the evening to a trap, removing the remaining live ones away, hoping thus to solve the riddle, and the following morning there was my harmless hedgehog, caught in the very act of making a grip at the poor little duck. The survivors were again placed in their former situation, and remained unmolested, thus bringing home the guilt to Mr. Hedgehog pretty conclusively.—*Christopher Parsons; North Shoebury Hall, near Rochford, Essex, January 6, 1845.*

Food and habits of the Hedgehog. A relation of mine, along with some other boys, at the "Blaeberry* time," this summer, alighted upon a pheasant's nest. Returning to the place a day or two afterwards, curiosity prompted them to examine, and see

* *Vaccinium uliginosum.*

now the eggs fared. They were much surprised at finding a stranger inmate in occupation. This was a hedgehog, which they had interrupted in the enjoyment of his ambrosia. One taken into the house, ate apples, and supped porridge and milk (for it was in Scotland), and when not otherwise engaged, delighted to roll himself up in the coziest nook of the fire-place, which, as it was in the summer, was filled with shavings.—*James Hardy; Gateshead, January, 1845.*

Habits of the Water-rat. It is, perhaps, not generally known, that the water-rat sometimes becomes very injurious in mills, situated on the streams which it haunts, by undermining the walls, and devouring the grain. We usually find it in lone, unfrequented waters, remote from human vicinity; and as if it scorned to derive its sustenance from man, relying on the bountiful provision, which, even in the wilderness and out-settlements of Nature, has been adapted and furnished to an appropriate population. I have heard of two instances, one in Berwickshire, and the other in East Lothian, where the water-rat has entered mills, and committed great ravages. In the suspension of business, occasional hunts would take place, and the rats, in some measure out of their element, were killed in numbers. Owing to their subterranean labours, joined with those of their congener, the brown rat, one mill had to be taken down and rebuilt.—*Id.*

Occurrence of the Badger near Cambridge. A badger, which is now a very rare animal in these parts, was captured on Monday, the 23rd of December, in Saxham Wood. The man who took it had not seen one for three years previously.—*Henry T. Frere; Jan. 2, 1845.*

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from p. 816.)

DIVISION II.

Osprey, *Pandion Haliaetos*. This very rare bird is only found in the vicinity of rivers and ponds, and migrates in September. It builds in rocky places. The osprey will sit motionless on some stumpy tree, or willow, overhanging the water, for several hours, without intermission, when it will dart on some passing fish, with inconceivable rapidity.

Honey-buzzard, *Pernis Apivorus*. Scarce. Migrates in winter, lives in extensive forests. It has the habit of remaining immoveable on the same branch of a tree for a whole day, in the same way as the common buzzard; from this stand it strikes at the smaller Mammalia, reptiles, and insects which may chance to appear.

Ash-coloured Harrier, *Circus cineraceus*, Mont. This hawk nestles in the standing corn, and is not uncommon in July and August, some few being seen as early as the month of April.

Tawny Owl, *Ulula stridula*, Selby. Migrates in winter. Not

common. Lives in woods, and very seldom seen in churches or ruins.

European Goatsucker, *Caprimulgus Europeanus*. Not uncommon, but rather local. It arrives in March or April, and leaves in September. I have often observed this bird fly many times round the same tree in pursuit of insects. I have had the young brought me several times, but have not succeeded in rearing them; their shape, and immense gaping mouths made them very ugly, but interesting objects of contemplation.

Common Swift, *Cypselus Apus*. Very common in all our towns; generally comes in the beginning of May, or last days of April, and leaves in August. This is, of all our Hirundinidæ, the highest flyer. Every one knows the insupportable cries it utters constantly while teaching its newly-fledged young to make the first use of their wings; and its appearance far from town, as being the harbinger of some approaching storm.

Martin, *Hirundo urbica*. Arrives in the end of April, and departs towards the end of September. Not uncommon.

Sand-martin, *Hirundo riparia*. Local, but not scarce on sandy banks; arrives towards April 15, and leaves in September. It often congregates with the preceding species before its autumnal migration.

Chimney Swallow, *Hirundo rustica*. Very common. Comes between March 28 and April 20; leaves in October. This bird destroys a vast number of moths, and often causes much regret to the lepidopterologist who finds their *débris* under its nest.

Spotted Flycatcher, *Muscicapa grisola*. By no means uncommon. Arrives towards the latter end of April, and leaves in September. This bird is naturally very tame, and sometimes chooses very noisy places for its nest; I have known a pair build for several years in succession, in the extended hand of a statue, on a lawn just in front of a country house. Another pair have nested in a vine under my window, from whence I can look down on the nest and its inmates. During the summer months, while in pursuit of insects, it chatters incessantly.

Red-backed Shrike, *Lanius Collurio*. Local. Common in wild and uninhabited mountainous situations; seldom seen elsewhere, except on its migrations in April or October.

Wood-chat, *Lanius rufus*. Common; comes in April, and leaves in October. I have several times reared the young of this species, which were remarkably voracious, and tore their food (raw meat) to pieces, by sticking it between the wires of their cage.

Golden Oriole, *Oriolus Galbula*. Common in woods and gardens. Comes in April, and leaves in September. Its principal food is the cherry; great quantities of which it destroys, in common with other fruits and insects. I have often observed the nest of the oriole, which has invariably been placed between the forked boughs of a tree, or suspended under one or more branches, by a sort of coarsely-woven rope. It is generally built entirely of the wool which sheep leave sticking among hedges and brambles; or in some localities, where this article is scarce, of fine fibres of different plants, thickly interwoven, and is then internally lined with moss and soft feathers. This bird has a peculiar low warble in the spring months, which it utters between its well-known cry. It is remarkably fond of its young progeny, and will dash nearly into the face of any person who attempts to approach its nest, crying fiercely all the while. It will follow the plunderer from tree to tree, for a considerable distance, every now and then making a sweep at him.

Reed-bunting, *Emberiza Schœniclus*. Not common. Nestles among the reed-beds of our rivers and marshes. Comes in April, or still earlier, and leaves in autumn. It wags its tail in the same way as the wagtails.

Ortolan Bunting, *Emberiza hortulana*. I have a couple of these birds in confinement. They grow very fat towards winter, and hop and chirp all night, to the great discomfort of the other sleepy tenants of the aviary. It arrives in March, and leaves in September.

Common Bunting, *Emberiza Miliaria*. Some few remain all through the winter, but the greater number come in April, and leave in autumn. Selby says this bird is gregarious in winter in England, but in this country it certainly is not.

Crested Lark, *Alauda cristata*. Scarce. Passes through Belgium in October. Some few nestle on our sandy shores.

Tree Pipit, *Anthus arboreus*, Bech. Comes in April, leaves in September. I shot one last December, which was in the company of some wagtails, near a pond. Nestles on the ground in woods.

Anthus campestris, Bech. (*An. rufescens*, Temm.) Small flocks are seen in April, and beginning of September. M. De Selys, to whom I am indebted for many of these notes, informs us that this bird nestles on our extensive heaths.

Yellow Wagtail, *Motacilla flava*. Large flocks appear in April and September.

Continental White Wagtail, *Motacilla alba*, L. Arrives in the beginning of March, leaves in autumn. It is our first spring visitant.

I have observed this species flying against window-panes in the same manner as the *Motacilla Yarellii* has been seen to do by several of your correspondents, and will, on a future occasion, give a detailed account of my observations on that subject.

Wheatear, *Saxicola Œnanthe*. Nestles on heaths; comes in April, and leaves in the end of September.

Whinchat, *Saxicola rubetra*. Local. Comes in April; leaves in October; grows very fat in autumn.

Stonechat, *Saxicola rubicola*. Very seldom found out of a few mountainous districts. Comes in April, and leaves in September. A very active little bird, which is in constant motion, and always perches on the highest branches of shrubs and hedges.

Song Thrush, *Turdus musicus*. Very common in March and April in spring, and on its return in September and October. Nestles in extensive woods.

Blue-throated Redstart, *Ruticilla cyaneola*, Meyer. Comes in April, leaves in September. Nestles among reeds.

Tithys Redstart, *Ruticilla Tithys*. Lives in large towns, and on the banks of the Ourthe and Meuse. Migrates in March and October. The male utters, day and night, its melancholy note, from the summit of some church-steeple or chimney-top.

Common Redstart, *Ruticilla Phœnicurus*. Nestles in rocky situations, and is only seen in the flat country on its double passage in April and September.

Nightingale, *Philomela Luscinia*. Comes in the beginning of April (the males a fortnight before the females), and leaves in the end of September, at which time both sexes are heard to croak; in spring this sound is only uttered by the female.

Blackcap, *Sylvia atricapilla*. Very common in gardens, &c.; comes in April, and leaves in October. Builds in hedges and shrubs.

Greater Pettychaps, *Sylvia hortensis*, Penn. Common. Comes in April, leaves in autumn. Its nest is generally not hidden from view with much care.

Whitethroat, *Sylvia cinerea*. Very common. Comes in April, leaves in September.

Lesser Whitethroat, *Sylvia curruca*, Lath. Scarce. Arrives in April, leaves in September. A very active little bird, whose peculiar cry at once discovers it to the naturalist.

Wood-wren. *Phyllopneuste sylvicola*, Becht. Scarce; migrates in May and August. Builds at the foot of trees in our forests.

Phyllopneuste rufa, Lath. Common in woods. Comes in March, leaves in October. It has a melancholy two-noted cry.

Yellow Wren, *Phyllopneuste Trochilus*. Very common. Migrates in spring, between the 15th and 25th of March; and in autumn, in September, or beginning of October. It arrives in flocks of fifteen or twenty birds. Its song is very pleasant, and consists of three or four modulated variations.

Lesser Pettychaps, *Hippolais polyglotta*, Vieill. Common, but local. Comes in May, leaves in September. Its song is very varied, and it has the power of imitating the notes of many other birds, with surprising accuracy.

Reed-wren, *Calamoherpe palustris*, Bech. (Arundinacea of Br. authors). Comes in May, leaves in August. Common among reeds. Its song very closely resembles that of the preceding bird.

Calamoherpe turdoïdes, Meyer. Comes towards the 15th of April, leaves at the end of August. Scarce and local. Nests in the vast reedy marshes of Campine. It has a very loud and peculiar song.

Common Hoopoe, *Upupa epops*. Comes towards the 10th of April, and leaves in September. Not common. Builds in marshy woods, in hollow trees. Its flight resembles that of the lapwing. One I kept alive for some time was fed entirely on worms and insects, which it would only eat when no one was in sight.

Wryneck, *Yunx torquilla*. Regular visitant to central Belgium in April. Leaves in winter. Nests on wooded mountains. Feeds on ants and other insects. The cry of this bird is a sharp whistle.

Cuckoo, *Cuculus canorus*. Comes at the end of April; the old birds leave in August, the young ones a month later. Common.

Turtle Dove, *Columba turtur*. Comes in April, leaves in autumn. Common in woods and large enclosures. I have often seen flocks of these birds roost on the trees in the Brussels Park, though there were numbers of people walking below them, which did not seem to frighten them in the least.

Common Quail, *Coturnix dactylisonans*. Remains with us from April 15th to the end of September. Some few are seen as late as the middle of October. Its numbers are annually decreasing. The male bird has, besides its ordinary cry, a lower note, resembling "ouen onen," which I have heard on quiet summer evenings.

JULIAN DEBY.

Lacken, January 13, 1845.

(To be continued).

Enquiry relative to the Staining of the Eggs of the Dabchick.

By the Rev. C. A. BURY, B.A.

There is a point in the history of the dabchick which, as it appears to me, requires elucidation. Mr. Atkinson, in his instructive notice of the habits of this bird (Zool. 497), admits the difficulty to which I allude, viz. : the colouring of the eggs during incubation. He writes : " I omit most of my remarks relative to the colouring of the eggs, which is, however, a very curious subject ; for to what cause is it due ? Not to mud (see Yarrell *in loco*) certainly in *this* case, for the soil adjacent is chiefly sand upon chalk : nor do I think it likely that, in any case, mud has aught to do with this colouring ; for the dabchick is so poor a walker, or rather hopper (its movements on land have been described to me as nearly resembling those of a toad), that I imagine it would always so place its nest as to allow of a passage into it directly from the water." The descriptions of Mr. Atkinson and others warrant this hypothesis. It is pretty evident, then, I think, that the colouring must be derived from the weeds ; and in reply to Mr. Atkinson's question, " If the colour must be ascribed to the weeds, is the dabchick's the only white egg so affected ?" I would first remark that, although it is not the only one that is so coloured, for the wild duck's is frequently so, more or less, none with which I am acquainted are so deeply and permanently stained with the colouring matter : and the first reason I would assign for this is deduced from Mr. Atkinson's account. " The nest," he writes, " seldom rose more than an inch or two above the water ;" and again, " They (the nests) were generally quite soaked with water, and the least depression by the hand, or otherwise, caused the water to rise in them." Here, then, as it appears to me, are almost grounds sufficient to account for this peculiarity. The nest is formed of weeds or rushes ; and these weeds or rushes, on which the eggs repose, must, from being constantly saturated with water, be in a state of decomposition. The pressure of the egg upon this mass of decaying vegetable matter, would certainly impart a stain ; and if the dabchick, like other birds, frequently turns her eggs, it is perfectly intelligible how the whole egg becomes stained.

But I have another solution of the difficulty to offer, to which I particularly request Mr. Atkinson's attention. That gentleman has so accurately observed the habits of this bird, and commands such admirable opportunities for observing them, that it will be easy for

him this season to place the matter beyond all doubt. An intelligent ally of mine, Mr. H. Dennett, is of opinion that the dabchick sits upon her eggs *while covered*. He has disturbed the bird too suddenly, he thinks, to allow her time to cover the eggs previously to her quitting the nest, and yet he has invariably found them covered. Should Mr. Dennett's opinion be correct, there is an end to all difficulty; for, considering the situation of the nest, the materials of which it is composed, and with which the eggs are covered, it were next to impossible they should not be as deeply and permanently stained as they are found to be. Mr. Atkinson's observations appear to me strongly corroborative of the opinion of Mr. Dennett. He writes, "I never saw a nest, not deserted, left uncovered;" and yet, methinks, he must sometimes have come upon a nest so suddenly as to compel the bird to leave without staying to pluck fresh weeds to cover her eggs with. That "the covering almost invariably consisted of freshly gathered weeds" does seem to tell against Mr. Dennett; and yet, the bird, when she turns her eggs, must partially, at least, remove the covering, and would naturally make it good with fresh weeds. When she leaves the nest without being much hurried, she may, as Mr. Atkinson describes, "peck away right and left," to make the concealment more complete, even supposing the eggs to be already covered. If Mr. Atkinson will make this a subject of observation in the ensuing breeding season, he will most probably be enabled to confirm the opinion of Mr. Dennett. I have not the opportunity, nor indeed has Mr. Dennett: for the piece of water, on which he has observed the dabchick to breed, exists no longer. The embankment gave way two winters since, and Westmill Pond was left an expanse of mud. It was on this muddy expanse Mr. Dennett saw the poor dabchicks, left by the sudden drainage, hopping about in most awkward fashion, like so many toads.

I am further indebted to Mr. Atkinson for the solution of a difficulty which occurred to R. Loe and myself, in connexion with the nidification of the moorhen. Loe, in the course of a walk one day last spring, took me to a small pond to show me where a pair of moorhens were breeding. We observed the young birds of a few days old skulking under the banks; but Loe discovered in a tuft of grass, close to the water's edge, a second nest, which he was sure was not there two or three days previously. The old birds could hardly have been so soon thinking of, much less preparing for a second family; and no second pair would have been allowed to settle in so limited a space: no doubt, therefore, this second nest

was formed for the reception of part of the existing family, when grown too large to be contained all in one nest, according to the practice observed by Mr. Atkinson, and recorded in his instructive notes on the habits of the moorhen.

CHAS. A. BURY.

Bonchurch, Isle of Wight.

Birds of Somersham, Huntingdonshire. By W. O. AIKIN, Esq.

IN all the works on British Natural History I have met with, there appears a great deficiency in the supply of information from the county of Huntingdon. With the exception of Whittlesea Mere being mentioned as the favourite resort of the copper butterfly, I do not remember any place in the county quoted as the habitat of an insect, plant, or bird. As the pages of 'The Zoologist' appear to be much devoted to local information, I venture to send you a list of the birds I have noticed near this place. I am aware I am badly situated, Somersham being on the extreme eastern border of the county; but perhaps what I now send may induce some one in another part of the county to add to these observations.

Of the falcons, the kestrel and sparrow-hawk are the most common, particularly the former; the marsh and blue harrier are frequently seen in the fens; the common buzzard occasionally; the kite, which some years ago was not at all uncommon, has now become very rare, I suppose in consequence of the great demand for their eggs amongst collectors; the peregrine and hobby are occasionally met with; the latter used to breed with us, but I have not heard of a nest since 1835, when I procured two young birds.

Of the owls, the white and tawny are common, and the short-eared is frequently met with in rough grass and stubble fields in November.

The ash-coloured shrike is rare; a fine specimen was shot at Hartford Hill the beginning of last October, and I observed one on the wing in October, 1842.

Of the thrushes, the missel thrush, the fieldfare, redwing, song-thrush and blackbird are very abundant: only one specimen of the ring ouzel has come within my notice, and that was a young one.

Of the warblers, our commonest are the robin, hedge accentor, gold-crested *Regulus*, nightingale, greater and lesser whitethroat, redstart, garden warbler, whinchat, blackcap, sedge warbler, and willow wren; the rarer are the stonechat, wheatear and reed warbler.

Of the titmice, we have all the species, except the crested.

Of the wagtails, the pied and Ray's are common; the grey only occasionally seen.

The meadow pipit and skylark are the only species of these genera that I have observed, and these we have in great abundance.

Of the buntings, the yellow, the common, and black-headed are common; the snow occasionally seen in severe winters.

Of the finches, the most abundant are the common and tree sparrow, the chaffinch, greenfinch, linnet, goldfinch and bullfinch; the rarer, the brambling, and lesser redpole.

The common starling is in great abundance.

Of the crows, the rook and magpies are very numerous, and the carrion, the hooded, the jackdaw, and jay, are common.

The green woodpecker and wryneck are common, and the great spotted woodpecker is occasionally seen.

The creeper and wren are common; also the cuckoo and kingfisher.

We have all the swallow tribe, except the Alpine swift.

The night-jar is now and then seen.

A fine specimen of the red grouse was taken alive at Ripton in March, last year.

The wood-pigeon, pheasant, partridge, and quail, complete the list of land birds.

W. O. AIKIN.

Somersham, November 29, 1844.

Absence of Mr. Waterton from England. Though I do not often venture upon edifying your readers, by writing in 'The Zoologist,' yet I always anticipate its appearance with pleasure, and scan over its contents each month with satisfaction and advantage. I think it bids fair to become the repository of many interesting facts that would otherwise never have been made public; and the good-natured discussions that are often carried on between your various correspondents, elicit many curious remarks, and must lead to habits of more correct and cautious observation, especially on the part of younger naturalists. I have been greatly pleased, on many occasions, to see the interest taken in your periodical by my friend Mr. Waterton, than whom, it must be confessed, a more correct observer, or more amusing writer, is scarcely to be found. From habits of long intimacy with him, and enjoying, as I have done, many a delightful sojourn at Walton Hall, I am accustomed to receive his *dicta* in Natural History, as so many truths, which really need no proving; and knowing his peculiar tact in observing, and habitual caution ere he forms a decided opinion, I consider his testimony is not, *in any case*, to be lightly esteemed. I regret to observe,

however, that it has become a sort of fashion, to call in question many of his assertions, and to throw a doubt upon many facts, which he seems fairly to have established. I am induced to venture these remarks, in consequence of what has fallen from some of your contributors, in a few of the later numbers of 'The Zoologist,' as I am afraid it may be construed into tacit acknowledgement of error, on the part of Mr. Waterton, if nothing should appear from his pen, in vindication of what he has before written. My friend, however, does not stand in need of my feeble aid, to defend his well-earned fame as a naturalist; but I think I may take upon me to assert, that he has *not even seen* any of the remarks to which I am alluding. Mr. Waterton sailed from this country on or about the first of October last, and is at present sojourning in the Eternal City, where it is not likely that he reads the pages of 'The Zoologist,' or, if he does, it is still less likely that he can at present reply to the various remarks that have called his accuracy in question. I feel it due to his literary reputation, to state thus much, leaving him to deal with the cases as he thinks fit, when an opportunity may present itself. During his absence, I doubt not, Mr. W. will lay up an amusing store of information, for the future benefit of his brother naturalists; and possibly, *a rod in pickle* for those who have been bold enough to attack him. I do not *take up cudgels* for Mr. Waterton, or pronounce him either right or wrong. I feel that I have only discharged an obligation, which friendship has imposed, and hope that you, Mr. Editor, will consider it merely as such, bearing in mind a well remembered passage, that

"Absentem amicum,

Qui non defendit alio culpante

. . . . hunc tu, Romane caveto."

— *S. H. Haslam; Greenside Cottage, January 10, 1845.*

Late migration of some summer birds of passage from Ireland. The great mildness of our climate induces many of our summer migrants sometimes to defer their departure much beyond the period usually assigned as limiting their abode in this country, and especially in England. Some birds spend even the entire winter with us, which seldom remain during that season in the sister country. The grey wagtail and the quail are to be met with, the winter through, in the south of our island, in nearly as great plenty as at any other season. The land-rail, too, prolongs its stay till very late in the season, being frequently met with, and shot by sportsmen, in potato-fields, after the stubbles have ceased to afford it shelter in autumn, and little other cover is to be found. The latest date at which I have marked its occurrence is October 12. The swift I have seen so late as September 12 and 20; house martin, November 3; cuckoo, shot August 22; the chimney swallow, this season, on November 10; and, on one occasion, so late as December 5; on a fine warm evening, two or three years ago, I observed a pair of these birds sporting about above the houses in Main-street, Wexford.—*Joseph Poole; Grovetown.*

Insectivorous propensity of the Kestrel, &c. The reference Mr. Bury makes to the kestrel, in his excellent article on the food of birds, in your last number (Zool. 816), induces me to mention, that on the 23rd of April, 1840, I observed a male bird of that species, hovering over a field of newly-sprung oats, and every now and then descending, and seizing something. Curious to know the object of its search, I succeeded in shooting it, and, on examination, discovered that it had been preying on caterpillars, about an inch and a quarter in length, and of a pinkish colour. These I at first conjectured to be wireworms, but have since seen cause to alter this opinion.

I am, however, unable to name the insect. In the stomach of the kestrel were also remains of one or two beetles. The subject of the food of birds is, I think, one of the most useful parts, if not the most useful one, of the science of Ornithology, and deserves more extended investigation than it has hitherto met with. Although it may be termed a cruel method, yet I agree with Mr. Bury in thinking that the only certain way of ascertaining the food of birds is to examine the contents of their stomachs or crops. We may, no doubt, observe their motions to some extent, by the aid of a good telescope, or by watching them from some place of concealment, but, for my part, I like to "make assurance double sure," to be perfectly certain of a fact before recording it.—*Archibald Jerdon ; Bonjedward, January 9, 1845.*

Rooks breeding in November.—In the month of November, 1844, my attention was attracted to a large solitary nest in the outermost branches of an old elm-tree, not far from the Park entrance to Broughton Castle, Oxfordshire : at first I concluded it must be a magpie's, which had become exposed by the fall of the leaf ; however, on looking again, I discovered that it was inhabited by a pair of rooks, and was afterwards told by some labourers, who had watched its building, that the rooks were now sitting. By the assistance of a glass, I was soon able to confirm their statement, as well as to watch the process of incubation. I think it must have been on the 18th of November that the young were hatched, at least I judged so from seeing the old ones carry up food (grubs, &c., which seemed plentiful), for several days after that date. The frosty mornings of the following week made the young ones cry out bitterly, when the weather becoming more and more severe, put an end to their sufferings. It seemed some time before the old ones could believe it ; at any rate, they were very unwilling to quit the branches near their nest. The situation which they had selected was several hundred yards from the regular rookery, and, during the time of incubation, six or seven other rooks might be seen looking on in mute astonishment at their neighbours' mistake. I do not recollect ever having seen on record such an instance as the above. Was it the second brood of the year, or the brood of birds which were hatched in the early spring?—*F. Wyatt ; Broughton, Oxfordshire, January, 1845.*

Occurrence of the Nutcracker and of the Golden Oriole in Sussex. In October last, I saw, at a bird-stuffer's in Brighton, a specimen of the nutcracker (*Nucifraga Caryocatactes*), which he told me he had received, *in the flesh*, from a farmer of the name of Newman. I called upon him, and he informed me that it was shot by his own nephew, a Mr. Roods, at Littlington, near Alfristone, in this county, on the 26th of September last. It was flying across a turnip-field, and appeared to have risen from a stubble near at hand. Unfortunately, the entrails had been removed previous to its being sent to Brighton, which effectually prevented the possibility of ascertaining the nature of its food : it appears to be an old bird, and is in excellent plumage, but the sex was not ascertained. I of course purchased the bird. Mr. Newman showed me, also, two specimens of the golden oriole, which he shot near Charleston, which is not far from Alfristone. They are both males ; they were together when seen first, and one of them, apparently a younger bird, was very tame. The other he chased for some miles, it being very wild, and keeping to the tops of the highest elms. A third, also a male, was shot a few days after, in the same neighbourhood, by a farmer of the name of Saxby. These birds occurred in the beginning of May, 1833.—*Wm. Borrer, jun. ; Brook Hill, Cowfold, Sussex.*

Nesting of the Swallow. No further observations appear to have been made on the subject of the swallow building in chimnies, in Scotland. Having been accus-

tomed to meet with this bird's nest placed against the rafters of the outhouses of farm steadings, "*lignis nidus suspendat*," as Gilbert White quotes, and never otherwise, the instances supplied by your correspondents, of its also betaking itself to chimneys in that country, as in the south of England, were new and unexpected. Being led to make inquiries, I have met with three well-attested cases, in which the barn and the cattle-sheds were abandoned, and a closer familiarity with man cultivated. They were all in Berwickshire, and in the immediate vicinity of those recorded by the Rev. Mr. Atkinson. At Flemington-mill, on the small river Eye, a pair of swallows were accustomed, for years, to place their nest on a projecting piece of wood, under cover of the black-old-wife-like hood, which it is customary to see on the summit of mills. Here they enjoyed, uninterrupted, many a happy summer hour; a special eye being kept on the affectionate pair by the owner of the mill. In process of time, however, the mill, "*vetustate conlapsa*," yielding to age, was removed and repaired; but, in the meanwhile, before their sooty tabernacle, could be replaced, the swallows had become attached to a new, and less disturbed locality. There is, in the village of Ayton, a chimney of a house adjoining to an inn, out of which, a pair of swallows, in their season, may be seen issuing, and then returning, as if they had there reared their summer home. The house is used as a washhouse and stable, and the fire is probably kindled in it, about once in the month. In the village of Whitsome, there is a chimney, says my authority, in which swallows (not the same pair I presume) have built, for at least, some thirty years. No fire had been on the hearth to which it appertained, for some moiety of the same period. An amusing accident happened to a friend, in reference to this very chimney. It was a winter day, and he had the room assigned to him, with which this chimney was connected. Without a propitiation to Vesta, in such inclement weather, the cold would have been intolerable. It was therefore resolved to light a fire that day. But scarcely had the smoke found its way up the damp, unaccustomed chimney, when, loosened from its ancient hold, down came plump into the midst of the flames, and with many a scattered fragment along the floor, the laboured pile of nearly half a century of swallows' assiduity. Here was the *argumentum ad hominem*!

In the choice of a site for their nest, in these several instances, the birds had been guided by circumstances. In villages, and near gentlemen's seats, few open offices occur, and a chimney seldom used is the readiest resource. In the country, there are few chimneys long unused, but then the outhouses are never closed. I know an instance where the swallows build annually, in a ruined cottage, to which they gain admission through the window. They have the option of two chimneys, but they prefer to conceal their nest behind a turf depending from the dilapidated roof. It is a popular belief, in Berwickshire, that every swallow's nest is provided with a small piece of glass; whether or not for the purpose of pluming itself in the gleam of day dawn, I leave to those writers in 'The Zoologist,' who have discussed the wagtails' attention to the window-panes.* It also, and probably by the same dubious light,

* A very good instance of the engrossing character of a window, I lately witnessed in a cock. He seemed to be a widower. Morning after morning, and with much agitation, he promenaded backwards and forwards on an outhouse, whose roof was level with a window. He was there in the morning, when I looked out, and in the evening, like one "crazed in hopeless love," he was still hurrying hither and thither. His owners probably pitied his cares, and — I saw no more of him.

“drinks a drop of the deil’s bluid, ilka Monday morning;” and not being over careful in its deglutition, a spot of the fluid “incarnadine” has become evermore impressed upon its chin. Children tell the same thing of the pretty yellowhammer, which wears the evil badge upon its brow, and both it and the swallow are, therefore, *sacred* birds, which it is dangerous to harm, but yet right to persecute!—*James Hardy; Gateshead, January 17, 1845.*

Superstition respecting the Martin (*Hirundo urbica*). In Fifeshire, there is a careful preservation of the martin’s nest, in whatever “coigne of vantage” it be situate, because the destruction of the nest betokens the departure of good luck from the house.—*Id.*

Migration of House Martins about Brighton. The last of the swallow tribe, which I observed here last autumn, was on the 18th November, when I encountered a party of martins, at least six, about the cliffs towards Brighton. The day was very fine, with bright sunshine occasionally, after many days of wind and rain, or fog; wind S.W., very light. I have often noticed, that both swallows and martins, when appearing on this coast late in the season, are, I may say invariably, proceeding westward, usually without a pause. So the above, after taking some short turns backward, speedily advanced quite out of sight; though I, on approaching Brighton, found the same (or another) party performing the same evolutions.—*A. Hussey; Rottingdean, January, 1845.*

Nesting of the House Martin. From my own knowledge, I can corroborate Mr. Sladen’s account (*Zool.* 763) of the perseverance with which house martins will endeavour to build in their accustomed locality. I have seen it attempted to dislodge them, by fastening bushes and nets under the eaves of a house, but they made their way through the net, and accomplished their nests, in spite of either twigs or nets, till the attempt was abandoned in despair, and they were thenceforward permitted to pursue their vocation in peace. The martin is a great favourite with me, and I am always glad to see them about my house, but must admit the great nuisance of the dirt they make. I have heard it stated, but am not aware of the fact being proved, that a line of black, painted along the wall where they are accustomed to build, will scare them away.—*Id.*

Protection of the Nightingale, &c., at Gradenfeld, in Prussia. It is a pleasing thing to witness the confidence and familiarity of the nightingale, when protected; as, for instance, in the promenade at Gradenfeld, a beautifully planted piece of ground, extending nearly a quarter of a mile, along both banks of a small stream. In addition to the penalties denounced by law in Prussia against those who rob the nests of the nightingale, a watchman is stationed here during the breeding season, for additional security. This may, perhaps, appear singular, in our matter-of-fact age, but I am confident that no lover of nature, who had resided in Gradenfeld, and enjoyed the delicious concerts which these birds maintain both day and night, except from about two to five o’clock P.M., would refuse his aid to such a custom. Many a bird-fancier is at much greater expense, not to speak of trouble, in keeping a ghost of a nightingale caged, and why should we wonder at the inhabitants of Gradenfeld, with their open-air habits, taking care that their favourite resort shall never become songless. Seated on a broad-leaved jessamine, the shrub which generally conceals the nest, the male bird will sing, although you pass within four feet of him, eyeing you as if perfectly aware that he is a privileged character. It is my belief that the same birds, in general, return yearly to their old quarters, or as near as possible, and

chase away all intruders, with a degree of animosity that does not at all suit the gentle melancholy nightingale of romance. We have two distinct species of nightingale, which dispute the palm of minstrelsy: the common, or western (*Luscinia*), and the eastern nightingale, or Sprosser (*Philomela*). The latter has the second primary decidedly longer than the fourth; the belly is generally pure white, and the back a brighter brown than in the common kind. Its note is, perhaps, somewhat inferior in compass and sweetness to that of the nightingale, but in return, it possesses the advantage in strength and fulness. In their habits, &c., little difference, if any, can be perceived. Besides the nightingales, a great variety of other birds find shelter in this privileged place, and being never molested, afford the naturalist excellent opportunities of observing their habits. Amongst others, the hoopoes generally build here; the golden oriole suspends its curious nest from the highest branches of the aspen, and breathes out its cheerful flute-notes at evening; the Bohemian wax-wing is a regular and plentiful winter visitant, whilst a variety of finches and warblers of less note complete this real "happy family."—*J. W. Slater; January 25, 1845.*

Gold-crests breeding twice in the same nest. In the spring of last year, a pair of gold-crests selected a fir-tree in our garden as being a fit and proper place to suspend their nest in; being unmolested, all went on prosperously, and in due time the young birds bid farewell to home. I took no further notice of the tree or nest, until one day I was attracted by seeing a gold-crest close to the old nest, which occurring again, induced an examination, and there indeed, either the same birds, or another pair, had commenced laying again in the old nest. All went on well with these also; the young were hatched, fledged, and flew away.—*Christopher Parsons; Jan. 6, 1845.*

Occurrence of the Waxen Chatterer near Hull. Within the last few days, I was told by a person residing a few miles from the town, that he had seen a pair of Bohemian wax-wings feeding on the haws which grow in the hedge-rows. They were very wild, in consequence of repeated attempts having been made to shoot them, but without effect. They were heard to repeat, occasionally, a sharp note, previous to taking flight, which very much resembled the flight of the starling. What makes the appearance of these birds more strange is, that we have had no indications as yet, of any frost whatever. I can rely on the evidence of the party, he having seen them, some years ago, in considerable numbers, in the same locality, and moreover, possesses a pretty fair knowledge of birds.—*G. Norman, Hull, November 21, 1844.*

Note on the occurrence of the Hoopoe in Sussex. On the 30th April, 1841, I saw a hoopoe on the border of this parish, at one of the very few spots where any trees exist. Having heard nothing more of it, I conclude it was on its passage to the interior.—*Arthur Hussey; Rottingdean, November 5, 1845.*

Migration of the Quail. In consequence of some fields of corn remaining in this part of England still standing in December, quails did not leave us till very late. After several days of severe frost, I heard of a pair having been seen in a field in the parish of Hornsey, near this town. I cannot remember the exact date, but it was some time in December; and in the last week of November, I saw a pair in this market, where they have been more plentiful than usual this autumn, which had been killed down in the fens. If the reason which I gave above, viz., the late harvest, be not the true one, I should be much obliged if any of your numerous correspondents would help me, as those which were seen at Hornsey had not been driven away by the

intense frost, which, curious to say, prevailed while the barley where they lay was being carried.—*Henry T. Frere; Corpus Christi College, January 3, 1845.*

Occurrence in Oxfordshire of the Andalusian Quail, a bird new to Britain. The addition of a species to our list of British birds, is a subject of so great interest, that, although anticipating a much more acceptable communication on the subject than any I can pen, still I cannot allow the fact to be any longer unrecorded in 'The Zoologist.' The species in question is beautifully figured in Mr. Gould's 'Birds of Europe' (vol. iv. fol. 264), under the name of the Andalusian Turnix (*Hemipodius trachydromus*, Temm.) Mr. Gould observes that the species of the genus *Hemipodius* differ from the true quails (*Coturnix*), in the total absence of the hind toe, and in the long and slender form of their bills: they are the most diminutive birds of the gallinaceous tribe being not more than half the size of the common quail. Mr. Temminck states that they are polygamous, and that they give a preference to sterile lands, sandy plains, and the confines of deserts, over which they run with surprising quickness; he also states that the young and old do not associate in companies, or in bevs, as is the case with the quail. Their food is said to consist principally of insects, small seeds, &c. The present species is tolerably abundant at Gibraltar, and that part of Spain which borders the Mediterranean, being more scarce in the central portions, and in the northern and all similar latitudes altogether absent. The top of the head is dark brown, streaked longitudinally with reddish-yellow; throat white; the feathers on the sides of the chest reddish-chestnut, those of the flanks yellowish-white, with a crescent-shaped mark of rich brown occupying the centre of each; lower part of the belly pure white; the upper surface is dark brown, with numerous zigzag lines of reddish ash, and transversely ranged with lines of brown and chestnut, each feather being finely margined with white; coverts of the wing yellow, with a spot of reddish chestnut on the inner web; primaries ashy brown, the outer web bordered with white; bill and legs greyish flesh-colour. For a notice of the occurrence of this bird in England, we are indebted to Mr. Goatley, of Chipping-Norton, who sent a letter on the subject to the 'Annals and Magazine of Natural History,' of which I subjoin a copy. "I have recently received a bird, which appears to me to be new to this country; it is a quail, having no back toe, and is not mentioned, I believe, in any work on British Ornithology to which I have access; but in Dr. Latham's 'General History' it is described as the *Perdrix Gibraltarica*, with which my specimen appears to agree. The bird was shot by the gamekeeper on the Cornwall estate in this county, about three miles from hence, and has been kindly presented to me. It was found in a field of barley, of which kind of grain, by the bye, hundreds of acres are still standing, with no prospect of being harvested in a proper state. Before I proceeded to preserve the bird, I took the measure of its various parts, the colour of its eyes, bill, and feet, its weight, &c.; after which I found its description in the work above alluded to. It was shot on the 29th of October last, since which time another has been killed near the same spot, by the same person, but its head was shot off, and otherwise so mutilated as to be unfit for preservation; this might probably complete the pair, mine being a male bird. It had in its gizzard two or three husks of barley, several small seeds, similar to charlock, some particles of gravel, and was very fat. It was considerably injured by the shot, but I have set it up in the best manner I could, and consider it a valuable addition to my small collection of British birds. Should this prove to be the only known instance of the capture of the bird in Britain, I shall feel

glad in having it saved from oblivion." I have observed that it not unfrequently happens that when once the attention of naturalists is called to an occurrence of this kind, similar records speedily follow, and I trust that the publication of so interesting a fact in the pages of 'The Zoologist,' will lead our ornithologists to keep a sharp look-out for more specimens of this beautiful little quail.—*Edward Newman; January, 1845.*

Food of the Pheasant. Mr. Milton, of Great Marylebone-street, had a cock-pheasant sent him a few days ago for preservation. On opening the crop he found no less than 852 larvæ of a species of *Tipula?* specimens of which I send you; they were nearly all alive. There was nothing else in the crop but a few "oak spangles." It appears that game of this description does some good, for I believe these larvæ occasionally do much mischief to meadows and the grain crops.—*Fred. Bond; Kingsbury, Jan. 1845.*

On the Transmission of Colour by the White or Pied Pheasants to their Young. By W. H. S.

MR. WATERTON, in his amusing 'Essays on Natural History,' states, if I recollect rightly, for I have not his works by me to refer to, that he does not consider the white or pied pheasant transmits its colour to its progeny, when left to breed in its natural wild state. In opposition to this supposition I send you the following remarks, the result of several years' observation on the subject: feeling assured, from the well-known urbanity of Mr. Waterton, and his desire to elicit truth, that he will not take offence at my endeavouring to controvert his opinion, when the facts I am about to relate are offered in support of the conclusion I have come to.

It is well known that amongst many kinds of quadrupeds the transmission of the parents' colour to their offspring is very constantly and strikingly illustrated. The same circumstance may be also observed in many kinds of domestic birds, as in our common fowls, turkeys, pigeons, ducks &c.; and where birds of the same kind, but possessing different colours, are allowed to intermix and breed promiscuously together, the result is generally, as in quadrupeds, a variegated progeny, partaking of a large proportion of the colours of the male and female from which they were descended. White and pied pheasants, when tame, and kept in an aviary for show, are sold by the London dealers, Baker, Helps, Herring and others, for the express purpose of breeding others of a similar colour from their eggs; and although the young ones may slightly differ in their markings from the parent birds, yet the general cast of colour is almost always the same; and it is rare that the egg of a white or pied tame bird produces a young one of the original colour of the common pheasant, from

which the parent originally descended. Though it frequently happens, that the common brown hen pheasant, when in its natural state, and where there are variegated or pied cock pheasants about, will produce a brood of young ones, some of which are pied and others of the usual colour. But this may perhaps be attributed to its consorting with some of the variegated, as well as with some of the common coloured cock birds. It is now several years since I perceived, amongst a considerable number, amounting to thirty or forty brace, of the common coloured pheasants, preserved and fed in a gorse-cover and plantation at the back of the house, one white pheasant, doubtless bred from the common pheasants, as at that time there were no variegated ones anywhere in the neighbourhood. It was a pure milk-white cock bird, and might be seen every evening almost, leisurely walking from a small rough pit, which it chiefly frequented, across a meadow to some trees in an adjoining pit—a favourite roosting-place of numbers of other pheasants also. In the dusk of the evening, the long tail and white colour of the bird gave it at first sight the exact appearance of a white cat prowling along, and for which I have frequently mistaken it. I desired this pheasant might not be destroyed or disturbed, and it continued to feed and roost with the other pheasants throughout the winter months—an object then of much curiosity to those who saw it for the first time. In the spring of the following year it remained more about its own pit, with a brown hen constantly associated with it, and others occasionally there also. In the breeding season an entire brood or nide of six pied young ones was the result. I do not now recollect the first year, what number of other variegated young birds were seen about, though certainly there were several of those seen amongst the other broods of coloured pheasants, the offspring probably of the same white cock bird as well. The second season, this white cock pheasant had become a most splendid specimen, continuing constantly about its former haunt. The six young pied birds grew up and intermixed, as did the other variegated young ones, with the common pheasants, without any shyness or hostility being shown towards them. Several of these young pied birds turned out to be hens, with no very attractive plumage, though some of them were curious from possessing so large a portion of white feathers, as well as white feet. The third season there were several broods, some of which contained both variegated and the common-coloured young ones, other broods consisting of only white and variegated young ones. These varieties have continued to increase, season after season, until there may now be seen from fifteen to twenty brace

of pied and white pheasants, where formerly, in the same covers, there was but one white or pied bird; and there would have been very many more, but a great number are annually shot by neighbours, who are unwilling to spare them whenever they fly across a brook which separates their lands from the covers in which the pheasants are bred. Some of these three or four year old cock birds possess the most brilliant plumage imaginable, and of almost every variety; and when the fox-hounds draw the covers, so many of these curiously marked pheasants, seen flying about in their natural state, affords a novel and amusing sight to strangers.

This season I have shot six or seven brace of the variegated pheasants, principally hens, and of the least beautiful kind, of which I forwarded as a specimen to the Editor of 'The Zoologist,' a cock and hen bird, nearly white; but the most splendid birds I have hitherto refrained from killing, on account of their singular beauty, though a very handsome brace of pied cock birds are in the possession of my friend, R. Eden, Esq., of the Privy-seal office, shot here by himself last November, and whose collection of foreign birds is well known to his friends. Other friends are also in possession of various specimens killed here at different times.

Out of so many, that some of these variegated birds should stray away, was to be expected, and consequently they have, from time to time, gradually wandered away to distant covers. At first I heard of their being seen occasionally only at a short distance off, and in after years I was told of their being met with and killed at greater distances from this place, but chiefly within a circle of two or three miles, which seems to be the limit they have hitherto spread to, and it is now not unfrequent for one or more to be seen in the various preserves within that space, the owners of which all agree that these birds must have come from hence, and designate them as "Hatton pheasants." And though now and then, no doubt, some of a similar kind are found originally so bred in more distant covers and in other counties; yet when this does occur, they are generally immediately shot, which accounts for their not increasing: but in the covers on this property, where they are protected, they are evidently fast increasing, and if not destroyed by neighbours, would do so much more rapidly. A friend also informed me that he had, some years ago, made a present of a pair of pied pheasants to his brother, a Staffordshire Baronet, to turn out amongst the vast quantity of the common pheasant which his covers are stocked with; and now, he states, a considerable number of the variegated kind are annually seen, where before there were none.

I cannot, therefore, from the facts here detailed, come to any other conclusion than that the white and pied parent pheasant, in its wild state, does transmit its colour to its progeny; and the contrary I think can only be considered as the exception to a general rule.

W. H. S.

Hatton Hall, February 2, 1845.

Migration of the Land-rail. On the 27th of November, 1844, my dog flushed a land-rail in some rape near which I was walking, upon our Downs. I should have doubted what it could be, but the bird rose too near me, and I have formerly been too well acquainted with it, easily to have mistaken. — *A. Hussey; Rottingdean, January 1845.*

Migration of the Water-rail. The migration of this bird having recently been a subject of enquiry, a word as regards its appearance in this neighbourhood may add to the knowledge of its movements. I am not aware that it has ever been seen here in summer, but in the winter season, or from November to March, it is very frequently found by small streams, in osier-beds, and such like places. I saw one on the 14th instant; it rose from a brook, and dropped in a ditch that had been dried or frozen up, and on approaching cautiously within about forty yards, being partly hidden from it by a hedge, I waited to see it come out, and presently it walked from its rough hiding place upon the bare turf, strutting and flitting up its tail in an amusing manner, till it ran off on my moving, to a copse close by. Last winter I witnessed a similar proceeding, within twenty yards of me, at an open ditch that crossed a narrow piece of ground between a hedge and a brook. I was in pursuit of snipes, and on crossing the ditch, was surprised to see the apparent familiarity of the bird. I stood still, with a setter dog at my heels, and we both watched it, till, I suppose, it began to feel alarmed, and walked through the shallow stream under some thorn bushes. I shot neither of these birds, thinking, with a former correspondent, they deserved to live.—*T. Goatley; Chipping Norton, Oxon, December 17, 1844.*

Occurrence of the Norfolk Plover in Co. Wexford. I had lately an opportunity of examining a recent specimen of the Norfolk plover (*Ædicnemus crepitans*), which had been shot in this vicinity by Travers Hawkshaw, of Hilburn-house. This I believe to be the first occurrence of this bird in this county; although from the neighbouring county of Waterford I have seen a specimen, and Thompson mentions it in his list as an “extremely rare visitant” to Ireland. Summer birds of passage remain much longer with us than in England; the greater dampness and mildness of the climate probably rendering their residence here more endurable. And this cause may account for the bird being found at this season.—*J. Poole; Groustown, December 8, 1844.*

Norfolk Plover wintering in Cornwall. An example of the Norfolk plover (*Ædicnemus crepitans*) was brought to Penzance about the 24th of December. Authors are unanimous in asserting that this bird leaves our shores in the autumn; but of the several instances of this bird's occurrence in the Land's End district, I do not remember one taking place except in the middle of winter.—*Edwd. Hearle Rodd; Penzance, December 31, 1844.*

Flight of the Woodcock. It seems that when passing over the sea, woodcocks fly at a great height in the air. A circumstance was mentioned to me a few days ago,

which would induce me to believe that it is only when over the sea that they do so. Mr. Norton, the coachman of the Cambridge and Bury St. Edmund's coach, on Monday the 16th of last month, was driving out of Bury rather late, and when about a mile from Kentford, at about half past 4 o'clock, saw a flight of these birds cross the road. He did not see them till they were above the road, and then they were flying low, some of them not two yards from his horses' heads. Directly they were over the road they sank again, and were hidden by the hedges. He had no doubt what birds they were, as, although it was dusk, he could see their bills as they flew. There were twenty or thirty of them.—*Henry T. Frere; Corpus Christi College, January 3, 1845.*

Occurrence of the Spotted Redshank at Elden. About eight years ago, in the autumn, a specimen of the spotted redshank (*Totanus fuscus*) was shot at Elden. The bird was preserved, but at the request of J. D. Salmon, Esq., then resident in Thetford, it was presented to the Norwich Museum, where I believe it still is.—*A. Newton; Stitchworth, Nov. 11, 1844.*

Moorhen's power of keeping its body under water. The following anecdote, showing the method by which the water-hen is enabled to remain so great a length of time under water, may interest the readers of 'The Zoologist.' Some years ago I was out exercising a young dog; and on coming up to a small pool of water, I perceived, by the ripples on the face of it, that some animal had just disturbed it, and I stood at the edge to see what it had been, knowing that if anything had dived, it must shortly reappear at the surface. In a few seconds, a water-hen came to the top, and immediately dived again. It seemed, in going down, to take a direction towards the mouth of the pool, and, thinking that, as the water was perfectly clear, I might have a chance to see it in its progress, I ran to that end. However, it was there before me; for on approaching the edge, I observed it at the bottom, anchored in the mud, into which it had thrust its head almost up to the wings. The water was not very deep, so I took off my coat, and, stooping down, I thrust my arm into the water and seized it by the legs. I brought it up quite uninjured, and took it home and put it into my ponds.—*Thomas Gee; * Beechwood, Mitcheldean, Nov. 20, 1844.*

Corrections of the Rev. J. C. Atkinson's Paper on the Moorhen, (Zool. 756). At page 756, line 22, instead of—

“I say nothing about beak or head,”

it should have been—

“I say nothing about ‘beak or head,’”—

the words “beak or head” being part of a quotation from the paper by W. H. S., (Zool. 667), with the *or* italicised. Again, at page 760, line 20, instead of—

“or adverting to this stratagem,”

it should be—

“or adverting to the stratagems.”

J. C. Atkinson; 19, George St., Hanover Square, November 16, 1844.

Further Notes on Moorhens. On the 31st of January last, I had again the most perfect and ample opportunity of observing a moorhen while partially submerged. The bird was within three yards of me, hemmed in by the ice in a small space of open clear water, about 2 feet deep, and surrounded with flags. After diving on my approach, it reappeared with its head and neck only above the water, and so remained

* Communicated by Edward Pritchard, Esq., of Ross.

for a considerable time. It then dived again, but appeared once more amongst the flags, at first with its head only above the water. Being hunted by the terrier, it dived a third time, and reappeared in the deep part of the water. I could observe it all the while, and every motion. At first only the head and neck were raised above the surface; but shortly, it raised up the upper part of the body also, leaving all the under portion of the body, and all but the head, neck, and just the top of the back and tail, completely under the water, and in that state remained for a long period, and until I disturbed it by sending the retriever in again after it. And its remaining in that position was totally without the aid of any hold upon the flags or weeds; for I could distinctly see the *feet* gently moving in the water, to resist the current and keep the bird stationary, and without, in the slightest degree, touching any weed whatever. From this recent opportunity, as well as from personal observation for many years past, I feel that the hypothetical strictures on my former observations, in no way alter or disprove what I have before stated relative to the moorhen's foot not being the instrument by which it is enabled to keep itself submerged, by means of the hold it has on the weeds, as contended by your correspondent in a former number of this work (Zool. 498). And indeed few kinds of weed could, by any possibility, especially in winter, when decayed, afford a sufficient power to counteract the resistance of the water, as he asserts it does.—*W. H. S. Hatton Hall, February 2, 1845.*

Occurrence of the Spoonbill at Frensham Pond. That interesting locality, Frensham Pond, has added another specimen to the already extensive list of the Ornithology of our neighbourhood. On the 24th of October, an uncommon-looking bird was noticed by the person who rents the pond, wading in the shallow water. He succeeded in shooting it, and it proved to be the common spoonbill, a young bird of the year, the crest being wanting. It is now in the possession of Mr. Mansell, and in beautiful preservation. Frensham Pond and its immediate vicinity, presents the same general aspect as in the days of White. The sterility of the soil renders it wholly unprofitable for agricultural purposes, and it is at all seasons of the year an interesting spot to the ornithologist. The popularity which Natural History has of late acquired, and the increase of those who turn their attention to it, subjects Frensham Pond to a more careful investigation than formerly, the occupier being certain of a remuneration, should he succeed in capturing a *rara avis*; as a natural result, several species have been added to the list.—*J. Lewcock; Farnham, Nov. 12, 1844.*

Note on Ducks &c. nestling in Trees. I believe the circumstance of ducks and other water birds hatching their young in trees, is by no means of uncommon occurrence; and I am inclined to think that little care is exercised in the selection of boughs overhanging the water. We find in Linneus's 'Lapland Tour,' a passage very decidedly bearing on the subject. "A little further on a couple of young owls were suspended on a tree. On my inquiring what these birds had done to be so served, the rower made me remark, on the most lofty of the fir-trees, concave cylinders of wood, closed at top and bottom, and having an aperture on one side. These cylinders are placed on the highest part of the trees, in order to tempt wild ducks to lay their eggs in them, and they are afterwards plundered by the country-people. In one of these nests a brood of young owls had been hatched, instead of young ducks."* This seems to imply that in Lapland at least ducks select such situations for nesting in pre-

* *Lachesis Lapponica*, i. 93.

ference to the margins of pools. The finding of a moorhen's nest in a tree has been recorded by an old and accurate out-door naturalist, in Loudon's 'Magazine of Natural History.' The passage has been often quoted, but I trust the readers of 'The Zoologist' will not object to its introduction here. "The piece of water called Old Pond, about one mile from Godalming, on the London road, is a most attractive spot to water-fowl; and an island in its centre is the resort of some of them in the breeding-season, and also a variety of other birds, which find it a safe and unmolested place for the same purpose. I have often delighted, in years that are gone, to visit this island and its inmates; the owner, Robert Moline, Esq., used to allow us free ingress to all and every part of the estate; a liberty any one with an incipient thirst for a knowledge of Natural History would be sure to avail himself of. One day, having pushed off from the shore, and moored the little shallop to some of the osiers which surrounded the island, I began my accustomed examination. The first object that attracted my attention was a lot of dry rushes, flags, reeds &c., enough to fill a couple of bushel baskets. This mass was lodged about twenty feet from the ground, in a spruce fir tree, and looked for all the world as if it had been pitched there with a hayfork. I mounted instantly, thinking of herons, eagles, and a variety of other wonders; just as my head reached the nest, flap, flap, out came a moor-hen, and, dropping to the water, made off in a direct line along its surface, dip, dip, dip, dipping with its toes, and was lost in the rushes of a distant bank, leaving an evanescent track along the water, like that occasioned by a stone which has been skilfully thrown to make ducks and drakes. The nest contained seven eggs, warm as a toast. The situation was a very odd one for a moor-hen's nest; but there was a reason for it: the rising of the water in the pond frequently flooded the banks of the island, and, as I had before witnessed, had destroyed several broods by immersion." In the instance mentioned by Rusticus, it is to be taken for granted that the nest was built by the bird, and was a matter of sheer design, whether to avoid the rising of the water or not, I will not presume to decide; but some doubt may reasonably be entertained, whether ducks ever do much in the nest-building way, and whether they do not, by preference, avail themselves of the deserted nests of other birds. Be this as it may, the fact as regards oviposition and incubation being frequently performed in trees, at too great a height to allow of the young falling to the ground without injury, and at too great a distance from the water to allow of their falling into it, is not only indisputable, but of too frequent occurrence to be regarded as a mere casualty. The parent birds must be impelled by some instinct, which would also provide for the safe carriage of the young to their natural element; and I confess I am quite inclined to adopt the solution of the problem given in the passage cited by Mr. Fisher, (*Zool.* 767). — *Edw. Newman*; 2, *Hanover Street, Peckham, October 17, 1844.*

Occurrence of Rare Birds in Devonshire. During the last two months several valuable birds have been obtained in this county, an account of which may be interesting to the readers of 'The Zoologist.' Two specimens of Sabine's gull (*Larus Sabini*) in immature plumage, were shot near Brinham, Torbay, about six weeks since, together with one of the Iceland gull (*Larus Icelandicus*). The same neighbourhood has also furnished an alpine accentor (*Accentor alpinus*). A fulmar petrel (*Procellaria glacialis*) was obtained last month near Plymouth. Mr. Row was fortunate enough to secure a beautiful specimen of Richard's pipit (*Anthus Ricardi*) in the Government grounds at Stoke: none of these latter birds have been seen since December, 1842.

The blackstart (*Phœnicura Tithys*) has appeared as usual, but not in any numbers. *W. S. Hore; Stoke Devonport, December 2, 1844.*

Note on the occurrence of the Pomerine Skua in Sussex. About the beginning of last October a Pomerine skua was taken in the adjoining village of Ovingdean. It had struck down a white gull, which it would not quit; it was kept alive above a fortnight, and then died. The very first day of its captivity, it (is said to have) devoured twenty-five sparrows. Once it escaped, and immediately attacked a duck, which it held till recaptured. The following description and measurements are as accurate as I can give, but I did not hear of or see the bird till it was stuffed, which being indifferently done, and the plumage injured, I may not have been perfectly exact. It will be perceived that this example more resembles Yarrell's skua than his Pomerine; and from the great difference of colour the bird was probably old. The bill and cere are dull black, the curved point rather darkest; the irides cannot be distinguished; head dark brown, or rather light rusty black; chin, throat and neck the same, only perhaps a shade lighter; general colour of back, wings and tail rusty black, but scapulars and back margined with brown, which gradually becomes broader, till very broad on tail-coverts; shafts of primaries (but nothing else) white; no perceptible difference of colour in tail-feathers, only one long one remains, which exceeds the others about half an inch; on breast narrow stripes of dark and light brown alternately; vent and under tail-coverts broadly barred, or mottled like the peregrine falcon or hobby; under side of tail-feathers whitish at base, increasing to dark lead; legs dark lead-colour, with a vivid tinge of light blue (probably more so when fresh), feet black. Total length barely 21 inches; length of wing from anterior bend barely 16 inches. I am informed that similar birds usually, but not every year, appear upon this coast about the same season as the above; and my informant not being acquainted with a larger variety (which I think he would have been, had they been equally common), I conceive the great skua, not the Pomerine, to be the rarity here. The vulgar name is "the boatswain." Though I believe I must have seen the bird occasionally, I have not hitherto noticed it particularly, certainly not witnessed its peculiar propensity. — *Arthur Hussey; Rottingdean, November 5, 1844.*

Occurrence of the Little Gull in Cornwall. On the 24th instant, I received a specimen of the little gull (*Larus minutus*), in precisely the state of plumage described by Mr. Yarrell as immature. This is not the first example of the capture of this species in Cornwall, but it is perhaps of sufficiently rare occurrence, especially on the western shores of Great Britain, to deserve a notice in your work. I observe that the tail-feathers have their extremities black, and that the tail is entirely *square* at the end. Mr. Selby however, in the last edition of the letter-press to his Illustrations, especially refers to the tail of this species when immature as being *concave* or *forked*. I have a specimen preserved of a bird answering in every respect to Mr. Selby's description of the immature little gull, exhibiting a deeply forked tail, but I cannot help thinking that his bird must have been Sabine's gull (*Larus Sabini*). Perhaps some of your correspondents will be good enough to offer their remarks on this point. I observe that in my example of the *Larus minutus*, the tarsus is much less robust, and the claws longer and more curved than in my suspected *L. Sabini*. I also observe that the upper mandible in the former is more arcuated, and the bill itself more robust.— *Edward Hearle Rodd; Penzance, December 31, 1844.*

A few Notes on the recent Change of the Herbage on Pilling Moss.

By the Rev. J. D. BANISTER.

FOR several years past, it has been remarked by persons visiting and working on Pilling Moss, that the herbage of a certain portion of it, much frequented by sea gulls in the breeding-season, had recently undergone, and more of it was yearly undergoing, a great and wonderful change.

For the information of persons unacquainted with this locality, let me inform them that the extensive tract of boggy land, commonly called *Pilling Moss*, is situated in the northern division of the county palatine of Lancaster, and principally lying in the parish of Cockerham, the townships of Winmarleigh, Out Rawcliffe, Stalmine and Pilling; but as Pilling occupies a central position, and has a greater extent of bog-land appertaining to it, than any one of the other aforementioned townships, this boggy tract has on that account, I presume, obtained the name of *Pilling Moss*, which for centuries has afforded a considerable supply of fuel to the inhabitants of the surrounding country, and has also been considered so inexhaustible as to become proverbial in many parts of the North of England, namely, that "Pilling Moss and God's grace will last for ever."

But it is the very remarkable change of the herbage of this celebrated Moss, that I have undertaken to notice in the first place. The chief part of this Moss, in its original wild, uncultivated and undrained state, produces very little herbage excepting bent grass, and a poor, short, unhealthy heath, provincially called *ling*. In its undrained state, the surface is of so soft and spongy a texture, that no description of cattle can depasture or even walk upon it in security; nay, unless a long frost has congealed the surface, or a succession of dry weather considerably evaporated the moisture, it is impassable, in many parts, dry-shod, by man. In every quarter boggy swamps, pits, or tarns of water, extensively prevail; and an unlucky or unguarded step may easily precipitate the careless intruder over head and ears in some of the deep sloughs, which are neither few nor far between. The average depth of this moss will probably be about eight or ten feet, immediately under which lies a stratum of blue sand, loam or silt, and this generally divides the boggy earth or peat from a rich and friable marl or clay, which, when applied as manure to the drained moss, renders it so fruitful as to produce, in favourable seasons, an excellent crop of oats.

Originally on this moss the common wild duck, teal, snipe, curlew,

golden plover, dunlin, and even red grouse, bred extensively, but of late their numbers have decreased considerably, especially since a large portion of it has been brought into a state of cultivation; though a few pairs of these birds still occupy certain districts where they annually rear their broods. New tenants, however, within the space of the last twelve years, have succeeded the ancient colonists, locating themselves in the wettest and least accessible portion of the moss. These modern settlers are the black-backed and black-headed gulls; and as the latter have been, for several years past, protected by the gamekeepers from the plundering propensities and pilfering habits of idle boys and mischievous persons, they have now become very numerous, and each succeeding year adds some thousands to their rapidly increasing numbers, so that the protection which is now thrown around this harmless bird, by the agriculturists and the gamekeepers, bids fair, at no distant period, to make this colony of black-headed gulls the largest in the kingdom. The place chosen by these birds for their nidification, is the most swampy that could be selected, and in its undrained state produces the least and poorest vegetation. Previously to its being selected by these birds for their breeding-ground, it produced scarcely anything but a miserably stunted, unhealthy, heath. This poor heath, in the immediate vicinity of these birds, has been almost entirely annihilated by their excrement, and in its place has sprung up a rich and varied vegetation, surpassing in verdure and luxuriance much of the cultivated land around and adjoining the moss. The following are a few of the plants which have been introduced on this moss by this novel system of husbandry, and which I collected when visiting the place during the summer of 1843.

1. The meadow soft grass, (*Holcus lanatus*).
2. The smooth-stalked meadow-grass, (*Poa pratensis*).
3. The sweet-scented vernal grass, (*Anthoxanthum odoratum*).
4. The broad smooth-leaved willow-herb, (*Epilobium montanum*).
5. The buttercup, (*Ranunculus* — ?).
6. The sorrel dock, (*Rumex Acetosa*).
7. The ragged Robin, (*Lychnis Flos-cuculi*).

Besides these I may also particularize the common rush, which now prevails so extensively on the breeding-ground, as to assume the appearance of a young plantation; and having got its strong roots deeply and thickly interwoven in the spongy surface of the moss, has thereby rendered travelling much more secure. The rushes which have here, within a few years, sprung up so thickly, were last year sold, by the owner of the moss, for *five pounds*; and had not the difficulty, and consequent expense, of getting them from the moss been very considerable (the whole of them, when cut, hav-

ing to be carried, in small bundles, such as a man could bear, on an average for half a mile), they would probably have been sold for four times the sum. To these I may add that nettles extensively abound, and also that the common fern is to be met with here, which latter plant is almost peculiar to a dry soil.

No one, who formerly knew this moss, and has witnessed the recent remarkable change, doubts for a moment that it has all been entirely effected by the dung of these birds, deposited on the moss during the breeding season. For as far as the nests of these birds have extended, and even somewhat farther, the change in the herbage may be distinctly traced; and as the gulls are yearly increasing, their breeding dominions must proportionably extend, until the cultivation of the moss abridges their territories, and eventually drives them to seek some other retreat. In the latter part of the month of May, or in the early part of the month of June, dependant in some degree on the season, this breeding colony of black-headed gulls is deserving of a visit, both from the ornithologist and agriculturist. The former will occupy a few hours agreeably in collecting eggs, materially differing in colour, although the produce of the same birds; at the same time he will have ocular proof of the varying plumage of the young birds, during their immature state. The latter may derive a salutary lesson, as he witnesses the wonderful change which the application of a suitable manure will produce on a soil even unprepared by any cultivation. If such an important alteration in the herbage can be effected by the excrement of this bird in an undrained morass, *one third*, if not *one half* of which, to the depth of eight or ten feet, if compressed by a machine of any considerable power, would be found to consist of water;—surely he would be constrained at once to come to this conclusion, that the application of this valuable manure, in proper quantities, to a soil prepared by a judicious system of drainage and cultivation, would force the most luxuriant crops of every species of agricultural produce which the English farmer ever wishes to raise. But I may, perhaps, be allowed to state, that this bird's dung, or, if you please, call it British guano, is not here, on this moss, so sparingly used as many persons tell us the Peruvian, Bolivarian, or even African guano should be. Any person who has ever visited a well-stocked rookery about the time the young birds take wing, or what is commonly called the shooting season, is well aware of the strong odour that assails his olfactory nerves, as he passes from tree to tree in search of his black game. But the stench which arises from the breeding ground of these gulls, at the time to which I have alluded,

is infinitely stronger than any odour I ever experienced, in any rookery I have ever visited. For the whole ground occupied by these birds, at the beginning of the month of June, is completely plastered over with their dung;—so thickly covered, that it might be supposed almost impossible for any vegetation to force its way through such a superabundant deposit; or that such an accumulation of rich manure would even rot the roots and seeds of the plants entirely. But visit again this *oasis in deserto* about the end of August, or the beginning of September, and the colour of the surface of the breeding-ground will be found to be most agreeably changed. Rich, tall, and luxuriant grass, of the kinds already particularized, will be found universally to prevail, and a crop abundantly sufficient to satisfy the owner or farmer of some of the richest meadows in the county palatine of Lancaster. Then, say I to the farmer, take or learn a lesson from these gulls.

“Longum est iter per præcepta, breve et efficax per exempla.”

I have only to add that as Mr. Yarrell, in his admirable ‘History of British Birds’ (iii. 434—436), has recorded that extensive colonies of black-headed gulls annually breed at “Scoulton-mere in Norfolk, at Twig-moor near Brigg in Lincolnshire, and at Pallinsburn in Northumberland;” I should be very glad to learn from any correspondent of ‘The Zoologist,’ whether any similar change of herbage has ever been noticed in any of those breeding-stations, as the effect of the dung of these birds deposited during the breeding-seasons.

J. D. BANISTER.

Pilling, Garstang, Lancashire,
February 5, 1845.

Frog found alive in Stone. A very lengthened statement has gone the round of the papers, relating the discovery of a frog in one of the Welsh slate-quarries. It is copied from a Welsh paper, but is so intermixed with editorial wit and erudition, that I cannot afford space for the entire statement. The facts are stated to be these:—that William Ellis, a quarryman, laid bare with a blow of his pickaxe, the cavity in which the frog had resided for countless centuries; that this cavity exactly fitted the form of the frog, which, on being liberated, leaped briskly into daylight, without expressing himself displeased with the change: and lastly, that he must have resided in the solid stone ever since the flood; 1. Because his mouth would not open! 2. Because he had a thin dilatable skin under his lower jaw! And, 3. Because he had a sharp angle in his back, which must have been occasioned by his cramped position! Naturalists will at once know how to appreciate these arguments.—*Edward Newman.*

On the Nidification of Fishes. By JAMES HARDY, Esq.

IN a recent number of 'The Zoologist,' (Zool. 795) Mr Couch has presented your readers with some very interesting details respecting the nidification of fishes. Aristotle was the first who detected the practice some fishes have of constructing nests. "Aristotle," says Baron Cuvier, in his 'Lectures on the History of the Natural Sciences,' "in his account of fishes, is truly admirable, giving proof of knowledge on many points superior to our own. Amongst the facts which he relates, many are still in doubt; however, from time to time, new observations teach us the justice of some of his assertions, even of those which seem the most hazardous. He says, for example, that a fish named *Phycis* makes a nest like birds. For a long time the thing was treated as a fable; however, very recently, M. Olivi discovered that a fish named the goby (*Gobius niger*) has similar habits. The male, in the season of love, makes a hole in the sand, surrounds it with fucus, making a true nest, near which his mate waits, and he never leaves his post till the eggs which have been deposited in it are hatched."

Mr. Hancock, in a paper on the mailed fishes of South America, in the fourth volume of the 'Zoological Journal,' observes of the *Doris costata*, and the *Callichthys littoralis*, both inhabiting the pools, lakes and rivers of British Guiana, that they form a nest of grass or leaves, and in it lay their eggs. "They guard their eggs as carefully as the hen, attacking every assailant, till the spawn is hatched."

In the 'Transactions of the Berwickshire Naturalists' Club' (i. 201), there is a notice by a distinguished naturalist, 'On the Nests of the Fifteen-spined Stickleback, or *Gasterosteus spinachia* of Linnæus,' of which, as a pleasing evidence of the faithful descriptions of two eminent observers, and as an additional illustration to Mr. Couch's paper, I append an extract.

"In an early volume of the 'Edinburgh Philosophical Journal,' there is a slight notice of fishes' nests found on the coast of Berwickshire, but the species of fish by whom they were constructed is not mentioned. Mr. Duncan of Eyemouth has ascertained that they belong to the fifteen-spined stickleback — a fact confirmed by the Rev. Mr. Turnbull, to whom the Club is indebted for specimens.

"These nests are to be found in spring and summer, on several parts of our coasts, in rocky and weedy pools between tide-marks. They occur occasionally near Berwick, but seem to be more common

near Eyemouth and Coldingham. They are about eight inches in length, and of an elliptical form or pear-shaped, formed by matting together the branches of some common *Fucus*, as, for example, the *Fucus nodosus*, with various *Confervæ*, *Ulvæ*, the smaller *Florideæ* and corallines. These are all tied together in one confused compact mass, by means of a thread run through, and around, and amongst them in every conceivable direction. The thread is of great length, as fine as ordinary silk, tough, and somewhat elastic; whitish, and formed of some albuminous secretion. The eggs are laid in the middle of the nest, in several irregular masses of about an inch in diameter, each consisting of many hundred ova, which are of the size of ordinary shot, and of a whitish or amber colour, according to their degree of maturity. The farther advanced are marked with two round black spots, which are discovered by the microscope to be the eyes of the embryo, at this period disproportionally large and developed. Masses of eggs, in different stages of their evolution, are met with in the same nest. It is evident that the fish must first deposit its spawn amid the growing *Fucus*, and afterwards gather its branches together around the eggs, weaving and incorporating at the same time all the rubbish that is lying or floating around the nucleus.

“For the safety of its nest and spawn, the fish is apparently very anxious for a time. Some individuals were watched, by Mr. Duncan and the Rev. Mr. Turnbull, for some weeks, and it was observed that the same fish was always in attendance upon its own nest. During the time of hope and expectation, they become fearless, and will allow themselves to be taken up by the hand repeatedly. There can be no doubt that their object in remaining near the nest is to guard it against the attacks of such animals as might feel inclined to prey upon its contents.”

Mr. Maclaren of Coldingham had also seen and watched the stickleback in the act of making the nests just described.

JAMES HARDY.

Gateshead, January 5, 1845.

Opossum Shrimps. I have done nothing in Entomology as to collecting, but we have strange things here; *opossum shrimps* in the forest, connecting the Crustacea to the fleas!—*Wm. Swainson*; * *River Hutt, near Wellington, New Zealand, Oct. 8, 1844.*

* In a letter to E. Newman.

Occurrence of Colias Edusa in Dorsetshire. I am sorry that I have not of late had time to contribute anything to the pages of 'The Zoologist,' though each month I have had the pleasure of reading its interesting contents, and I think it has now become just such a magazine as was wanted. I beg to add one more note to the number that have been already communicated respecting *Colias Edusa*. It is to be found in very considerable plenty nearly every year, in the beginning of September, on the cliff to the eastward of Charmouth in Dorsetshire. It was also observed a few years since in very great abundance, at Abbotsbury, a few miles further east. During the following year not a specimen could be taken there, but I have no doubt that in seasons when it is plentiful elsewhere, it would be also there as on the former occasion. A single specimen of the pale variety was taken some years ago at Charmouth, at the above-named locality, by Henry Arthur Beaumont, Esq. — *Francis Orpen Morris; Whitwell, near York, January 7, 1845.*

Occurrence of Colias Hyale near Cambridge, &c. In the numerous notices that have appeared in 'The Zoologist' of the occurrence of *Colias Edusa*, in the past year, I observe only one mention of *Colias Hyale* having been seen, namely, near Arundel. From this general silence of your correspondents respecting it, it would appear to have been out but very sparingly; yet a considerable number of specimens have been taken near Cambridge, chiefly I believe about the Devil's Dyke, which is in the chalk country. Some of these were evidently just out of the chrysalis, much too perfect to have travelled far, or to be in the second year of their age. Mr. Clark, of Corpus College, also took one near Lincoln, in the past season. In 1842, on the 13th of September, I took a female on very high land near Matlock, in Derbyshire. I was at the time in pursuit of larger game, and my surprise and joy at this new appearance was only equalled by the astonishment of the keeper at my proceedings. I never felt less keen out shooting than I did after this incident; but in vain did I devote the following day to the net; and my excess of wonder only began to diminish when I heard from my brother that he had taken one at Eton, in Buckinghamshire, and had heard of their being taken almost everywhere. I then began to look upon it as a case parallel to that of *Vanessa Antiopa* in the year 17—? a sudden unaccountable apparition throughout the kingdom, a "Grand Surprise;" but when they were plentiful again in 1843, and (about Cambridge) again in 1844, I thought it not impossible a new era might be established, and that *Colias Hyale* had ceased to be among the rare, from what causes it seemed fruitless to conjecture — unless it be a fact worthy of observation, that they were first found frequent on the coast opposite and nearest to France. They have now been out three successive years, decreasing rapidly in point of numbers each year. In 1842 the collectors about here were not properly on the *qui vive* till too late, yet numbers of *Hyale* were caught but not one *Edusa* (I believe). In 1843, *Edusa* abundant; of *Hyale* several scores were caught. In 1844, *Edusa* and *Hyale* were seen in much less abundance, but in about the same relative proportions as in 1843; of *Hyale* one or two dozens were taken. It would be highly interesting to know whether the periodical appearance of these insects in England corresponds with the same on the continent. — *John Wolley; Trinity College, Cambridge, Feb. 4, 1845.*

Occurrence of Melitæa Dia near Birmingham. At page 267 of the 'Entomologist' (No. xvii.), published in March, 1842, you throw some doubts upon the fact of the reported capture of *Melitæa Dia* in this country; and remark that the ascertaining of such fact is "an enquiry of great interest." Now, I have the pleasure of positively stating, that I had the good fortune to capture two specimens of that new insect in

one of my early entomological excursions, more than twenty years ago. I must have taken them within ten miles of Birmingham: that being the utmost extent to which I had then travelled in search of insects. No sooner had I discovered that I possessed such a treasure, than I carefully separated them from my specimens of *M. Selene*, for which I had, at first, mistaken them. For the last twenty years, having been much occupied in exploring various remote parts of the United Kingdom, I have had but little time or opportunity to travel over my old grounds in the neighbourhood of Birmingham, or to visit, at the proper season, the spot which I believe I can confidently point out as that where my specimens of *M. Dia* must have been taken. Very shortly after the discovery of what my specimens probably were, they were taken to London by Mr. Marshall, the well known entomologist, and ascertained to be the true *M. Dia*. Much has been said by some gentlemen about mixing foreign specimens of insects with British. No one can condemn that practice more strongly than myself. Yet I really think that there is little justice or good feeling in accusing, or even suspecting, an entomologist of such unpardonable negligence, without something more than surmise of the fact. It has been well observed by an eminent entomologist with whom I have the honour of occasionally corresponding, "that if we disbelieve the existence of all which we do not ourselves see alive, our list (of British insects) will be small indeed." Now, I can very confidently state that, until long after the time when the two specimens of *M. Dia* fell into my hands, I had never bought, nor exchanged, any insects; and that I possessed not one single foreign specimen: so that I could not possibly have confounded those of my own capture with others. I regret that I was, till lately, ignorant of the remarks in the 'Entomologist;' otherwise, this statement would have reached you at a much earlier date. — *Richard Weaver; Pershore St., Birmingham, January 9, 1845.*

Apatura Iris. This insect, so notorious in England for its lofty flight, is, in Silesia, no wise remarkable in this respect. It is fond of muddy lanes, of which there is no lack, and may often be seen enjoying itself on the borders of a puddle. The favourite method of capture is to bore a hole in the trunk of an oak tree, at a convenient height from the ground, when the *Apaturas* eagerly come to feast on the sap. *Apatura Ilia* and *Clyti*, as well as the various species of *Limenitis* are taken thus to great advantage.—*J. W. Slater.*

Vanessa Antiopa. This is, in general, the most plentiful butterfly here [in Silesia]. There appear to be two distinct varieties; those which appear in spring having the border of the wings sulphur yellow, whilst the autumnal brood, like British specimens, have a white margin.—*Id.*

Hermaphrodite Moth. In 1839, a curious hermaphrodite moth was captured near Cosel. The body was divided laterally into male and female, the more obvious, as it was a specimen of *S. dispar*; the male side much smaller than the female, and furnished with a plumed antenna, whilst the other had an antenna of the usual bristle form: in short, the distinction was complete in every part of the body visible. I much wished to obtain this specimen for dissection, but could not succeed.—*Id.*

Capture of Cleora teneraria and Petasia cassinea. *C. teneraria* is considered a very rare insect throughout England. I received four specimens from Carlisle, taken last autumn. About nine years ago it was not uncommon upon stone walls in the vicinity of a favourite wood. I have seen them in spiders' webs, and thought them of no importance at that time, being only a novice in the science. Of *P. cassinea*, my father and brothers took four pair in one day last October, resting on the trunks of trees and on twigs, being the first time that the perfect insect has been taken there. — *Jas. B. Hodgkinson; 12, Friday St., Preston, Jan. 19, 1845.*

Xerene plumbata and rubiginata. Many southern entomologists suppose *Xerene plumbata* to be nothing more than a northern variety of *X. rubiginata*; but this opinion seems to require confirmation. It is received as a general rule, that varieties are of less frequent occurrence, but in a locality near this place *plumbata* is fully as abundant as *rubiginata*. There is another reason for supposing them specifically distinct: near Carlisle, *X. rubiginata* occurs wherever there are alders, while I have seen but two specimens of *plumbata* taken near that town: I may also remark, that the flight of *plumbata* is much quicker than that of *rubiginata*. Although I have seen these insects flying abundantly of an evening, I have failed in producing them the next day by beating.—*Jas. B. Hodgkinson*; 12, *Friday-street, Preston*.

[Although reluctant to offer opinions at variance with those of my contributors, I think it right to observe, that I have seen series of this moth, in which every imaginable intermediate variety occurred between the distinctly marked *X. rubiginata* and the suffused *plumbata*, so that I cannot doubt the species being identical.—*Edward Newman*.]

On Miana strigilis and M. Æthiops. These are now supposed to be varieties of one species, and I admit there is a great general resemblance in their markings; the subjoined remarks may, however, be thought worth perusal. The moth which we know as *M. Æthiops* had been abundant here for three years previous to the last, while not a dozen of *strigilis* were taken; but last year the latter was most abundant, and *Æthiops* equally rare: during ten years entomologising near Carlisle, I saw but one specimen of *Æthiops*, although *strigilis* was always common there, so that the Carlisle entomologists agree with me in supposing them distinct.—*Id.*

Captures of Plusia Interrogationis and P. Bractea near Carlisle. In the year 1839 a specimen of each of the species above-mentioned was found at about a hundred yards from each other. My brother got *P. interrogationis* resting on a wall, and *P. bractea* was found resting on a nettle, both on the same day, and in fine condition. Can any of our entomological friends inform us whether they are diurnal or nocturnal, as I have heard of their flying during the day. If information can be given on the subject, perhaps they may be taken more frequently (if nocturnal), by the sugar system, as all the *Plusias* are very fond of sweets.—*Id.*

Larva of the Crane-fly. As I believe the larva of the crane-fly is by some thought very pernicious, and by others acquitted of all mischievous habits, the following fact may serve to throw light on the matter. In the spring of 1843, some young balsams which I had in a pot withered away, and were found eaten off immediately below the surface of the soil. I was at a loss what could be the cause, until one day I perceived something projecting upwards from the soil, which proved to be a *Tipula* just emerging from its pupa. On examining the soil, I found several other pupæ, and was no longer astonished. The soil had been partly brought from Ashton Moss, where these insects abound to a distressing degree, and are said, in my opinion with perfect justice, to damage the crops on the reclaimed part of the moss to a very serious extent. At all events, the larvæ of the Elateridæ cannot here be the offenders, as they generally prefer less swampy localities. *Ctenicercus pectinicornis* abounds in meadows about Fairfield, and *C. cuprea* is equally plentiful in the middle region of the hills, but I never took either of them, nor, in fact, any other Elater, upon Ashton Moss.—*J. W. Slater*; *January, 1845.*

Descriptions of the British species of Bees belonging to the Genera Anthophora and Saropoda of Latreille; with observations on their economy. By FREDERICK SMITH, Esq.

THE species belonging to these genera are very closely allied; St. Fargeau has united them all under *Anthophora*; still our British species have the maxillary palpi four-jointed in *Saropoda*, whilst in *Anthophora* they are six-jointed: the neuration of the wings is similar, each having three complete submarginal cells of the same form. The *Anthophoræ* are harbingers of spring; I have met with them on warm sunny days, at the latter end of March; the male, at this period, may be observed in close attendance on "his swarthy bride;" they are partial to the flowers of the dead nettle. In the year 1826, in the month of April, I amused myself by watching a number of both sexes of *A. retusa* issuing from their burrows, formed in the mortar of a brick garden wall, alighting occasionally on the leaves of the shrubs, and basking in the warm sunshine; the males rapidly chased the females from shrub to shrub, and as they settled on the leaves, these sportive things pounced upon them, and again the pairs took flight: my attention was at length arrested by the sluggish flight of one individual, which settled on the leaf of a laurel tree; this bee appeared to have no inclination to join in the gambols of the rest; what was my astonishment, on a closer examination of the creature, to observe, that its face was half black and half yellow: I captured it, and it proved to be an hermaphrodite, a description of which was published by Mr. Shuckard in the 'Entomological Magazine.' No figure having been published of it, I have drawn one to illustrate the present paper. Had any further proof been necessary of the pro-



Hermaphrodite specimen of *Anthophora retusa*.

priety of uniting the dissimilar sexes of this species, the capture of this singular monstrosity would have proved conclusive.

The Saropodæ are lovers of the hottest sunshiny weather: I do not recollect ever meeting with them, except on such days in the months of July, August, and September. The *Saropoda bimaculata* is an especial favourite with me; I delight to observe its rapid flight, to listen to its shrill hum, and to watch it revelling amongst the flowers of the purple heath; it is a bustling, active little creature, the very personification of life and joyousness: the female, whilst excavating her burrow, appears to work in a perfect fever of excitement, occasionally fluttering her wings, and producing a sound so shrill, that I have more than once mistaken it for the squeak of a field-mouse; she appears unable to execute her task with the rapidity she could wish. The situations she chooses are hard sand-banks, in the neighbourhood of heath, to the flowers of which this species appears to confine itself; I never observed it to settle on any other flower: it is a gregarious insect, some colonies being very numerous.

S. vulpina also burrows in sand-banks; I captured one or two issuing from them at Charlton, in Kent, but, as far as I have observed, it is solitary.

S. furcata has been recorded to be a wood burrower; I was never so fortunate as to discover its nidus, but some years ago, previous to the old wooden outhouse in the market gardens at Battersea being destroyed, I frequently met with the species frequenting the flowers of the dead nettle.

Genus.—SAROPODA, *Lat.*

Sp. 1. SAROPODA BIMACULATA.

Apis bimaculata, Panzer, Kirby. *Anthophora bimaculata*, St. Fargeau.

Female, (length $4\frac{1}{2}$ lines). Black, finely punctured; head, the clypeus pale yellow, a central attenuated line running upwards, and another along the margin of the eyes, as high as the base of the antennæ, yellow, forming a tridentate mark; the labrum pale yellow, a minute black spot on each side at the base; the mandibles yellow at their base, their apex rufo-piceous; the antennæ rufo-piceous beneath; the face, from the stemmata to the base of the antennæ, and thence along the margin of the eyes, leaving the clypeus naked, clothed with reddish-yellow hair; the pubescence on the sides of the thorax is of the same colour, and dark brown on the vertex; the legs are rufo-piceous, clothed above with pale yellow hair; at the apex of the anterior and intermediate tibiæ, and of the posterior femora, is a patch of short rufous hair, the claws and calcaria rufo-piceous. The

abdomen is subglobose, thinly clothed at the base with pale fulvous hair; the four segments are margined with hair of the same colour, the first very narrowly so; the fifth segment is entirely clothed with very short pale yellow hair, intermixed with some long reddish-brown hairs, which densely clothe the apical margin; the sixth segment has on each side a tuft of dark brown hairs projecting beyond the apex, giving it the appearance of being bidentate.

Male, (length 4 lines). Black, minutely punctured; head, the face below the antennæ yellow, their scape and the labrum yellow; the mandibles yellow at their base, piceous at their apex; the centre of the vertex, and thence to the base of the antennæ, clothed with fulvous hair, the legs above clothed with short, pale, fulvous hair, the tarsi ferruginous, the apical joint dark piceous, and somewhat dilated. The basal segment of the abdomen thinly covered with short, pale, fulvous hair; all the segments have a marginal fascia of short hair of the same colour, the seventh is covered with the same, and has a smooth central carina, and two tufts of hair projecting beyond the apex, giving it the appearance of being bidentate.

The collecting of a series of specimens in different states, and a comparison of them with Kirby's originals in the cabinet of the Entomological Society, prove that *S. rotundata* and *S. bimaculata* of Kirby constitute but one species; *S. rotundata* being the more recently disclosed insect: the bright fulvous colour of this bee becomes almost white in old worn specimens. I believe the *Apis rotundata* of Panzer to be the male of this species: The eyes of this bee, when first disclosed, are of a beautiful light green; after some days exposure they turn to a blue grey. I have found this species abundant in two or three localities in Hampshire: I have also taken it at Weybridge; perpendicular sand-banks, on or in the neighbourhood of heaths, appear to be its favourite localities.

Sp. 2. SAROPODA VULPINA.

Apis vulpina, Panz., Kirby.

Female, (length $4\frac{1}{2}$ lines). Black; head, the labrum thinly clothed with reddish-brown hair, the face with dark brown, and the vertex with black, a cinereous pubescence on the cheeks, that on the thorax above is brown, beneath and on the legs it is cinereous; at the extreme apex of the anterior and intermediate tibiæ above, is a small patch of short, bright, fulvous hair, and at the apex of the posterior plantæ is a tuft of brown hair; the tarsi ferruginous, and calcaria tes-

taceous. Abdomen subglobose, all the segments have a marginal fascia of pale fulvous hair.

Male, (length 4 lines). Black; the face below the base of the antennæ yellow; two quadrate black maculæ at the base of the clypeus; the labrum yellow, with two minute black spots at the base; a spot on the mandibles, and the scape of the antennæ in front yellow; the pubescence on the thorax above is pale fulvous, beneath and on the legs it is cinereous; all the femora clavate, the intermediate pair much dilated, the calcaria testaceous, and the tarsi ferruginous. The abdomen subglobose, the basal segment thinly clothed with a pale fulvous pubescence; all the margins have a fascia of pale fulvous hair, inclining to cinereous, towards the apical margin.

The subglobosa of Kirby's Monograph is the female of this species; Panzer's vulpina is, I think, the male: if such be the case, the figure is not good, the spots on the clypeus are much smaller than in any specimen I ever saw; the antennæ are also represented as being incrassated; in our male they are filiform: the description, however, is good, and suits our species. This is rather a scarce bee; it burrows in banks, and frequents the flowers of the dead nettle; the sexes are frequently found in company; its flight is very rapid, and its hum particularly shrill and cheerful; by its particular tone I could detect the presence of this species, as well as Anthidium, Anthophora and some species of Bombi.

Sp. 3. SAROPODA FURCATA.

Apis furcata, Panz., Kirby:

Female, (length $5\frac{1}{2}$ to 6 lines). Black; head, the face below the base of the antennæ thinly clothed with ferruginous hair, the labrum more thickly with hair of the same colour; the vertex thinly clothed with black hair. The disk of the thorax clothed with reddish-brown, and the sides with fulvous hair; at the extreme apex of the posterior plantæ is a fasciculus of bright ferruginous hair, the scopulæ fulvous. The abdomen very thinly clothed with pale fulvous hair, the apex of the fifth and sixth apical segment bright ferruginous.

Male, (length $4\frac{1}{2}$ to 5 lines). Head, clypeus, and labrum yellow, the latter with two minute black spots at the base, placed at the extreme lateral margins, the scape of the antennæ has a thin yellow streak in front, but sometimes it is totally black; the pubescence on the clypeus is bright yellow, between which and the base of the antennæ it is brown, and black on the vertex; the thorax is clothed with ferruginous hair above, on the sides it is pale, as well as on the

legs; the tarsi, posterior plantæ, and calcaria are ferruginous. Abdomen, thinly clothed with ferruginous hair, the apical segment with black, the seventh segment is obtusely bidentate; the apical segments beneath are clothed with very short ferruginous hair.

I think there is no doubt that this is Panzer's *A. furcata*; his description is that of a long disclosed specimen. This species is by no means abundant; it is one of those local insects which are sometimes taken in some numbers, and then lost sight of, perhaps, for years. I have captured it in Hampshire and Kent: in the Battersea fields some years ago I found it pretty numerous, but the old wooden outhouses and palings are since destroyed, and I cannot now meet with the bee, so that I conclude it is a wood burrower, as Mr. Kirby has recorded on the authority of Mr. Trimmer. I never observed it frequent any flower but the dead nettle.

Genus.—ANTHOPHORA, *Lat., St. Fargeau.*

Lasius, Jurine. *Apis*, Linn. Kirby.

Sp. 1. ANTHOPHORA RETUSA.

Female.—*Apis retusa*, Linn. *Apis acervorum*, Fab., Panzer.

Female, (length 7 to 8 lines). Black, the labrum clothed with rufous hair. Thorax, the posterior tibiæ and plantæ at their base clothed with ferruginous hair. The calcaria black.

Male.—*Apis pennipes*, Linn. *A. pilipes*, Fab., Panzer.

Male, (length 6 to 7 lines). Black; head, the clypeus yellow; the lateral margins and a minute spot or streak on each side towards the base black; between the clypeus and the orbits of the eyes yellow; the scape of the antennæ in front, a spot on the mandibles, and the labrum yellow, the latter has two dark brown spots at the base; the cheeks clothed with longish cinereous hair; the pubescence of the thorax above is fulvous; all the coxæ and the anterior femora at the base fringed with cinereous hair, becoming fulvous towards the apex; the intermediate legs have the femora and tibiæ thinly fringed behind with long black hair; at the extreme apex in front is a patch of short ferruginous hair, and behind, the fringe towards the apex is cinereous; the plantæ are elongate, and have a fringe of short stiff black hair at the apex in front; this and the three following joints are thinly fringed behind with long black hairs; the terminal joint is fringed on both sides; the posterior legs are clothed with black hair, and have on the hinder margin a narrow fringe, and at the extreme apex of the tibiæ a patch of cinereous hair, which also clothes the tarsi above; the plantæ are ferruginous within; the abdomen is

oblong, subglobose; the first, second, and (base of the) third segment, are clothed with fulvous hair; the remainder with black; beneath, the margins of the segments are laterally fringed with cinereous hair.

This an abundant species, and appears very early in the spring; the colour of the male soon fades from exposure, and at length it becomes entirely grey; this has, in some degree, contributed to the confusion arising from its having been described under several different names. Large colonies of this bee I have frequently met with; I have observed one for the last ten years in a bank, the face of which is completely drilled with their burrows. In Yorkshire I once observed immense numbers of this bee flying about the south side of a large barn constructed of stone; the mortar was perforated in all directions, and I was informed that it has more than once been repainted: wherever a colony of this bee is found, its parasite *Melecta* may be observed entering the same burrows.

Sp. 2. ANTHOPHORA HAWORTHANA.

Apis Haworthana, Kirby's Mon.

Female, (length 7 lines). Black; head nearly as wide as the thorax; the labrum clothed with pale brown hair; the pubescence on the metathorax laterally is brown: the posterior tibiæ and plantæ are clothed outside with fulvous, and the latter within with ferruginous hair; the calcaria testaceous, the tarsi beneath ferruginous. Abdomen, the first segment laterally, and the rest entirely, have a marginal fringe of sooty-black hair.

Male, (length 6 to 7 lines). Head, face below the base of the antennæ yellow, with two square black maculæ at the base of the clypeus, sometimes united; the scape of the antennæ in front, and the labrum, yellow, the latter with two small lateral black maculæ at the base, the mandibles black. The pubescence on the thorax above is fulvous, with a few black hairs on the disk; the anterior femora, and intermediate coxæ, fringed behind with cinereous hair; the hinder margins of the intermediate and posterior tibiæ fringed with fulvous hair, their extreme apex also ferruginous; the intermediate and posterior plantæ black; the former has a fringe of short black hair at the apex in front, and a few rather longer on the hinder margin; the apical joint has a very short fringe of black hairs on both sides; all the tarsi otherwise ferruginous; the calcaria testaceous. The abdomen has the first, and sometimes the second segment clothed with ferruginous hair, and the rest sparingly with short black hair; the

marginal fringe of the segments is sooty-black, that on the second and third occasionally intermixed with fulvous hairs.

This species, although closely resembling *retusa* in general aspect, is extremely distinct; the resemblance is closest in the females: in *Haworthana* the head is proportionately wider, and the insect is much less pubescent, but its pale calcaria will at once distinguish it: the male has not the intermediate leg longer than the posterior, as in *retusa*, nor has it the tarsi fringed with long black hair, as in that species; its mandibles are quite black, and generally only the first segment of the abdomen clothed with fulvous hair. St. Fargeau considers the male synonymous with that of *retusa*, but in this he is mistaken. This is a very local species: the only localities I am acquainted with are Hampstead and Blackheath, near London, near the telegraph in Coomb Wood, and Cove Common in Hampshire. I once captured a beautiful species of *Melecta* parasitic upon it. I have observed this species burrowing in banks, and also in the level ground; the latter is a circumstance which I never observed in the other species.

FREDERICK SMITH.

March, 1845.

Eggs of Ichneumons. In a former number (Zool. 749), is mentioned an instance of a caterpillar having been reared which had *Ichneumon* eggs in its skin; and suggesting the experiment of crushing the eggs, in case the caterpillar of any rare moth should be found similarly affected.

I have no doubt the plan would succeed if we had instruments sufficiently delicate to crush, or still better, to extract the eggs without injuring the skin. I have tried it several times, but only succeeded once, viz., in the caterpillar of *C. vinula*, which contained but one egg, and that of some magnitude. This I extracted, but it adhered so firmly that it was more like tearing away part of the skin than removing a parasite. The skin, however, was not injured, and I obtained a very fine male specimen of the moth.

In this instance, the caterpillar was large and smooth, and what was curious, though the rest was of the brownish hue which they assume before transformation, a small circular space, of which the egg formed the centre, was still of a beautiful green. I have experimented on some of the genus *Orthosia*, but have never effected the removal of the eggs without causing a discharge from the skin, and in every case the experiment failed; but then I must observe that I had no forceps calculated for such delicate operations, and therefore my failure ought not to discourage others who may have more appropriate instruments. — *Wm. Turner; Uppingham, Feb. 12, 1845.*

Note on the Entomology of Lundy Island.

By T. VERNON WOLLASTON, Esq., B.A., M.C.P.S.

HAVING been induced, in June, 1844, to visit Lundy Island, in the Bristol Channel, for the purpose of exploring its entomological productions, a short notice of my captures may not be altogether devoid of interest, partially on account of the singular locality in which they occurred, and partially because I have reason to believe it is the first time it has ever been visited for the like purpose.

And it may be well to state, before we proceed, that the island is situated between the coasts of Devonshire and Wales, about fourteen miles from the former, the nearest land being Hartland Point, the western extremity of Bideford Bay. It is an extremely dangerous and barren coast, the island being about three miles and a quarter in length, and half a mile in breadth at the widest point. It is actually inaccessible, except in the calmest weather, the few inhabitants it contains being frequently shut out from all communication with the main land for months together during the winter; and, to an entomologist, nothing could possibly be more unpromising than its whole appearance. There is but a single landing-place, which, on account of the violence of the westerly gales, has been formed on the eastern side of the island, and nowhere is the good old proverb "*incidit in Scyllam qui vult vitare Charybdim*" more strongly illustrated than it is here. For, with the slightest breeze from the east, the most distant chance of landing, on account of the numberless under-rocks, is destroyed, so that, while guarding against the perils from the *west*, you stand a fair chance of being overtaken by worse ones from the *east*. The island, which is nothing more nor less than a large granite rock, rising perpendicularly to an immense height out of the sea, has not so much as a *single* tree to boast of, the few that have ever been planted having invariably been blown up by the roots before they arrived at maturity; for the gales are at times so tremendous, that it is next to impossible for anything but the strongest building to withstand them. The danger attending the passage in a small boat, and the great probability of being unable to land when you get there, are reasons of themselves quite sufficient to deter people from visiting a spot apparently so dreary and uninteresting: but the ardour of an *entomologist* is not to be damped by such obstacles; the "*amor habendi*" is too strongly developed to be outshone by the risk; and when there is a chance, however distant, of obtaining

Calosoma Sycophanta as a prize, it is needless to add how much this "amor habendi" is increased!

It was with such a prospect as this that I started from Clovelley at the commencement of last summer to spend five days on the island.

An unentomological friend, but who had a sufficient knowledge of the science to distinguish some of our rarer and larger species, assured me that he was present at the capture of *three* specimens of this rare insect, and that for *three-pence each* he had the refusal of them. This happened on an occasion, a few years ago, when a party of pleasure had been made up to visit the island, the three specimens in question having been accidentally picked up by a man who was evidently no connoisseur, for (if I rightly understood my friend), upon the whole party exclaiming in their innocence against the "outrageous charge," the man, in a fit of indignation, rather than lower his price, set them all at liberty!

Having been collecting for some months in Devonshire, and for the previous fortnight along the whole line of coast which faces the island, I naturally expected to meet with the same species, and was not a little surprised to find them entirely different. For instance, *Cicindela maritima*, *Nebria complanata*, *Simplocaria semistriata*, *Ægialia globosa*, *Anomala Frishii*, *Hypera dissimilis*, *Philopodon geminus*, *Cleonus nebulosus*, *Macrocnema marcida*, *Chrysomela hæmoptera*, *Phylan gibbus*, &c., &c., which occur in actual profusion on the opposite shore, I could not find so much as an example of, whereas insects which I had never observed in any part of Devonshire, and which, if they exist at all, are undoubtedly exceedingly rare, were here in abundance. The common *Cetonia aurata* is a remarkable instance of this; an insect which, however, appears to frequent most of the islands off our coast. In the Scilly Islands it is most abundant. An object well worth the attention of a naturalist, and which, when once seen, can certainly never be forgotten, is the innumerable quantity of sea-fowl which swarm by tens of thousands in every part of the island, and create at times a confusion and din which it has seldom been my lot to witness. Hawks, puffins, cormorants and gulls, were amongst the most conspicuous; and, happening to be there shortly after the young ones were hatched, I had an opportunity of getting close enough to see them to advantage. They sat by myriads on the ledges of the rocks facing the sea, and were, in some instances, packed so closely together, that by rolling large stones over the edges of the cliffs, they might be killed by wholesale.

The sloping declivities facing the north are covered with a thick layer of guano, in some places several feet in depth, but of course rendered inefficacious by the excessive moistness of the atmosphere. It is in the crevices of these slopes that the greater number of the birds build, nearly all the holes appearing to be more or less connected; and the sport of watching the old birds into their nests and blocking them up with large stones, in order to observe where they emerged, was most amusing, and proved very satisfactorily their subterraneous connexion.

However, my chief object having been to investigate the Coleoptera of the island, I subjoin an *entire* list of my captures, inasmuch as the non-appearance of several species which usually swarm everywhere, and nowhere more than they did on the opposite coast, is, perhaps, more remarkable than the appearance of whatever in the following catalogue may be considered of rarer occurrence.

Cicindela campestris	Typhæus vulgaris	Graptodera oleracea
Olistophus rotundatus	Aphodius ater	Thyamis apicalis (<i>Waterh.</i>
Calathus melanocephalus	Cetonia aurata	<i>MS.</i>)
Argutor erythropus	Dolopius marginatus	pusilla
Amara trivialis	Lepidotus holosericeus	Mantura Chrysanthemii
convexior	Agrypnus murinus	Sphæroderma Cardui
Harpalus æneus	Melanotus fulvipes	Chrysomela varians
limbatus	Aplotarsus hæmorrhoidalis	Banksii
Notiophilus striatus	Telephorus testaceus?	Sarrotrium muticum
Haliphus lineato-collis	Ptilinus pectinicornis	Helops striatus
Hydroporus jugularis (<i>Bab.</i>)	Ceutorhynchus didymus	Mycetocharus murina
Colymbetes chalconotus	Nedys assimilis	Aleochara fuscipes
Helephorus grandis	contractus (var. ?)	Astilbus canaliculatus
granularis	Anthonomus ater	Ocypus compressus
griseus	Sitona subaurata	Quedius tristis
Laccobius globosus	canina	Philonthus æratus
Cercyon ruficorne	Polydrusus chrysomela	Cafius lateralis
piceum	Apion curtirostre	Polystoma obscurella
fuscescens	violaceum	Gyrophypnus linearis
Nitidula æstiva	striatum	Omalius rivulare
Anisarthria minutissima?	Kirbii	
Atomaria fuscipes (<i>Gyl.</i>)	apricans	

To these I may add an apparently undescribed species of Hydroporus; at all events I cannot refer it to any one hitherto recognised as British: a singular variety of Nedys contractus, with pale yellow legs, taken in abundance from a species of Brassica, which grows in profusion on the eastern side of the island: and also what I conceive to be a new species of Macrocnema, allied to chrysocephala,

but, in *all* instances, *without a red head*, much narrower and smaller, and as to colour, varying in every consecutive shade between the limits of light yellow and dark metallic green. This was also taken on the same plant, and in company with the preceding insect. Of *Mantura Chrysanthemii*, an insect which is usually considered exceedingly rare, I took several curious varieties, as also of *Anthonomus ater*, all of which last were so *small* as to make me suspect at first that they were a distinct species. *Cercyon ruficorne* and *Omalium rivulare* I never captured except on the wing, but then in tolerable abundance, although only on the eastern shore, where they appear to live amongst the rejectamenta.

The birds seemed the only species of life which chose the *western* coast for their habitation, for even the grass itself cannot withstand the violence of the gales that are constantly blowing from the south-west, as may be seen from the huge masses of granite which are not merely left bare, but actually decomposed with the action of the wind.

In Lepidoptera I should think the local list must be exceedingly small; nevertheless, having merely directed my attention to the Coleoptera, I cannot answer that such is the case. The only species I observed were the common *Cynthia Cardui* and *Hadena plebeia*, the former of which was tolerably abundant. As representatives of the other departments of Zoology, I can merely name *two*, the abundant existence of each of which I can, however, practically vouch for: these are rats and rabbits. The former grow to an unusually large size, and, not content with a mere *theoretical* existence, are amongst the first to make your acquaintance on landing, more particularly if you come, as is perfectly necessary, well laden with provisions. That the *latter* not only occur, but abound, I have more than once *proved*!

T. V. WOLLASTON.

Jesus College, Cambridge.

Corrosive fluid ejected by Cychrus rostratus. In a former number (Zool. 339) is a notice concerning the corrosive fluid ejected by several of the Carabi, when captured. In the species there mentioned I have never happened to remark it, but on capturing *Cychrus rostratus* I have received a most painful discharge nearly in the eye. I am inclined to suspect that this liquid contains nitric acid, as it left a mark very similar to what a drop of that acid would have occasioned.—*J. W. Slater*; *Jan. 25, 1845.*

Utility of Calosoma Sycophanta in Silesia. This beautiful beetle is very common

in the pine-forests, particularly on the path leading to the Raubchloss, where they spangle the sand and the tree-trunks like living gems. The splendour of its elytra, green, gold, scarlet, orange, the rich purple-black of the thorax, the rapidity and ease of its movements, render it a pleasing object, even to the most careless, whilst the pungent odour, which it possesses more strongly, I believe, than any other of the *Geodephaga*, readily betrays its presence. Except from the collector, however, it has nothing no dread, its utility to man being both known and appreciated. The pine-forests, for instance, are exposed to the ravages of various Lepidopterous insects, such as *Smerinthus Pinastri*, and in particular, *Gastropacha Pini*. Now, a pine-tree, once stripped of its leaves, or *needles*, as the Germans more aptly term them, does not recover like an oak, or a sycamore, but dies. Scarcely is vegetation at an end, when the *Longicornes* seize upon the trunk, and burrow in it; the wood-ants tunnel it in all directions, and it thus becomes worthless. Many hundred acres of the finest timber are thus often destroyed. It is an interesting sight to any but the owner, to visit a forest under the infliction of *Gastropacha Pini*; the thousands of caterpillars eagerly feeding produce a distinct crackling sound, as the hard, dry pine-leaves yield to their persevering jaws. The large moths fluttering lazily about, or perched on the leafless sprays, await the approach of evening, when the gamekeepers kindle large fires, in the open spaces. Into these multitudes of moths fall, and are consumed; but this, with all that are destroyed by hand, or devoured by birds, would avail little, but for the services of certain insects. Our *Calosoma* is one of the most active: both larva and beetle mount the trees, and slaughter both moths and caterpillars, far more than are requisite to satisfy their appetite. Those seasons in which the pine-moth is most numerous are also remarkably favourable to the *Calosoma*, and to several kinds of *Ichneumons*, which also prey upon the pine-moth.—*Id.*

Economy of Cetonia aurata. This beetle is occasionally found in and about ant-hills. Some naturalists maintain that the larvæ also are found in such localities; this, however, I cannot say from actual observation. Certain it is that the mature beetles walk about unhurt amongst the crowds, whilst every cockchafer or *Carabus* that intrudes is soon seized and devoured.—*Id.*

Ravages of the Cockchafer in Silesia. The ravages committed by the cockchafer (*Melolontha vulgaris*), in Silesia, are sometimes really frightful; the oaks appearing at the end of May as bare as in January. The lime, cherry, and birch suffer less, and the leaves of the beech seem to have a fatal effect on the destroyers, whose dead bodies generally strew the ground beneath. Every third year they are particularly numerous, and various methods are then used to destroy them. The trees are shaken early in the morning, when the beetles, falling down, are collected in sacks. A small reward is frequently paid by the magistracy, for every measure delivered in. Pigs, poultry, and a variety of wild birds feast upon the beetles, but for all this, little diminution is perceived, until about the middle of June, when they are succeeded by *Amphimalla solstitialis*, a less powerful, though equally zealous depredator.—*Id.*

Habits of Oryctes nasicornis in Silesia. I resided for three years within five minutes' walk of probably the richest locality in Europe for this fine insect. The refuse bark from the extensive tanneries has been thrown upon a plot of waste ground bordering on the forest of See, and has there accumulated to a considerable depth. On any fine evening in July you may observe them, some emerging from their cradles beneath the surface, others travelling about, or forming cells for the reception of their eggs. Their muscular power is astonishing: enclose one in your hand, and he will

force his way out in a very short time. Their life, in a state of maturity, does not exceed three days, and, judging from this, I should estimate that several thousand are produced in the bark heaps in a favourable year.—*Id.*

Cantharis vesicatoria in Silesia. This pretty beetle is only a summer guest with us; with all possible care, I have never had the good fortune to find its breeding-place, which is probably south of the Carpathians. It appears suddenly in June, in rather numerous swarms, which arrive during the night, and are found early in the morning upon the ash, honeysuckle, and some other trees and shrubs, which they soon strip of leaves. Their presence is announced by a most penetrating odour, perceptible at a great distance from the trees on which they sit, and suggesting unpleasant ideas of blistering ointment. Their susceptibility to cold is remarkable; the freshness of early dawn is sufficient to chill and benumb them, and if the trees be then gently agitated, they fall down. In this manner they are collected for sale, and killed by sprinkling with cold water.—*Id.*

Remarks on the varieties of certain species of Game.

By the Rev. G. F. DAWSON.

MY object in this note is more for the purpose of calling the attention of naturalists to a fact, which does not appear to have been noticed by writers on Natural History, but which, to many sportsmen, must be well known, namely, that there are two distinct varieties of the common hare, the common wild rabbit, and the woodcock, respectively; than of pointing out every mark of dissimilitude that may exist between the varieties I enumerate of those particular animals. I wish simply to offer an introductory statement of my own recollections and observations on the subject, in the hope that some one among your readers may be found, who possesses sufficient opportunities and inclination more fully to investigate the matter.

1. It is not remarked by writers on Natural History, that there are two ordinary varieties of the *common English hare*. The common hare of the fields and open plains is the animal usually described, with its long and sinewy legs, so admirably adapted for speed, together with its other well known characteristics. The *variety* unnoticed is the *wood-hare*. This animal is distinguished by the proportionate shortness of its legs, which are also smaller, and more slightly formed, especially the fore ones, and, at the same time, by its larger and heavier body: it is found in woods and hedge-rows, and never makes its form far from cover: it chiefly delights in lying under the shelter of the hedge-bottom, and if it lies out in the open field by the cover side, will generally select the shelter of a small bush, if there is one; it is more local in its habits, and never wanders far from the

same haunts, so that it may generally be found in the same hedge-row, or dry ditch, or plantation, where I have frequently found it in the same form, at the foot of the same stump. Though the long-legged hare will take refuge in copses and wooded inclosures, this short-legged wood hare is never, I believe, found in the plains and open country, and from its physical construction being less swift than than the other, would afford but indifferent sport at a coursing match, from its inferior capabilities of displaying those instantaneous turns, and ingenious manœuvres, for which the other kind, those about Newmarket Heath especially, are so remarkable.

2. *The Wild Rabbit* is generally described as burrowing in the earth, both in warrens and in hedge-rows and banks. There is a variety, however, which never burrows in the ground, but lies beneath bushes, or among the herbage of hedges or woods, and is called by the common people of that part of Hertfordshire which borders upon Bedfordshire, the *bush-rabbit*, and in the northern parts of the same county, the *stub-rabbit*: it appears to be unnoticed by authors as a variety. Colonel Hawker, who does not mention it, after describing the methods of killing rabbits in general, says, "if they are shot in a slovenly manner, they will most likely scramble to earth, if there is one near, and so escape," which is true enough of the burrowing rabbit; and indeed, what any animal may do for its protection, when wounded and in pain, it is impossible to say. I have known a wounded partridge take refuge in a drain, though there was a thick hedge-row close to that drain, which was a proceeding at variance with its ordinary habits; and therefore, under similar circumstances, a non-burrowing rabbit may, in its distress, scramble into a hole, or burrow, if there happen to be one in its way, in which to die in secesy; but, as far as my own observation extends, I never remember one of these *bush-rabbits* running to ground, even when wounded; and certainly it is contrary to its habits to do so under different circumstances.

3. *The Woodcock*. That there is a small variety of this bird (which may eventually prove a distinct species), I have long been aware, as many sportsmen must be also, but it has never, I believe, been generally noticed. Latham, indeed, speaks of two varieties of the common bird, and even describes three; but mentions them more as occasional deviations, than as possessing any permanent points of difference: yet the distinctive characters of the smaller bird in question are beyond what we should ordinarily assign to an accidental variety. It is more local, it is true, in its distribution; but, inde-

pendently of its smaller size, which alone would form no criterion, whereby to judge of its distinctness from the common woodcock, which is well known to vary in size and weight most astonishingly; it possesses several other characteristics, which at once clearly distinguish it. In the family Scolopacidæ generally, the females are not only larger than the males, but also of a *darker plumage*: the dark shades on the upper part of the back of the common woodcock, for instance, being blacker, and the red of the lower portion of a deeper red in the females than in the males: but in this small variety, the colour of the *males* is much darker than that of any *females* of the common sort; in fact, it is known in some parts of the country by the name of the *little black cock*. It differs also in its flight, by which it may be distinguished before it is brought to the ground by the fowling-piece of the sportsman: whereas the common bird generally springs with a noise which sometimes almost rivals that of the hen pheasant; this bird, on the contrary, rises silently, and flies off in a sort of wavy or zigzag direction, a good deal like a snipe, and with a flap of the wing as noiseless as that of an owl, and indeed I recollect on one occasion, several years ago, when, having killed one, I believed so confidently that I had been shooting at an owl of some rare species, that was to prove to me a prize, that when I picked up my bird I was surprised to find it a woodcock, forgetting, at the moment, the usual peculiar flight of this *little black cock*.

I trust that these few observations may be the means of directing the attention of naturalists more forcibly to the subject, and of eliciting a fuller and more complete investigation of a matter, less generally known than the opportunities of almost daily occurrence, which so many possess, would warrant us in expecting should long ago have been fully established. With respect to the hare, it would be desirable to ascertain, by a comparison of a sufficient number of individual specimens of each kind, whether other distinctive marks do not exist between them besides those I have mentioned. A sporting friend of mine is of opinion that the *short-legged wood-hare* is simply a variety of the other, and that it copulates with it, the produce sometimes partaking of the character of one parent, and sometimes of that of the other: but it may be a question whether such is the case, or whether the distinction between them be not of a still more permanent character. The habits of animals form no inconsiderable guide to their specific arrangement. The same course should be adopted with respect to the *bush-rabbit*. As for the small variety of the wood-

cock, which may, as I have said, eventually prove specifically distinct, I expect to hear more on the subject in the pages of 'The Zoologist.'

G. F. DAWSON.

March, 1845.

A few words on the question, Do the inferior Animals possess Intellectual Powers or not? By T. W. BARLOW, C.M.B.S., &c.

“Est brevitate opus, ut currat sententia.”

THAT the vital principle, inherent in the inferior animals, is extinguished with their present life, no true believer in the Bible, the great foundation stone of Christianity, can for an instant doubt. *There* we find at once a decided answer to the vague speculations of modern philosophers on this point, in the distinct declaration by HIM who cannot lie, that they “perish.”

Many, however, have even gone further than this, and in addition to negating their claims to a *future* existence, have also denied that they possess any reasoning or intellectual powers for the government of their actions in *this*, and attribute these actions to a certain innate prompting which they call *instinct*. The consideration of this matter must be alike interesting to the naturalist and the philosopher.

In what then do instinct and reason respectively consist?

Reason is, I conceive, that internal faculty, which enables us to digest and turn to a useful purpose those ideas which the mind engenders from external circumstances; and although mind may exist without reason (though rendered useless by the separation), it is impossible for reason to exist without mind. It follows, therefore, as a matter of course, if it be proved satisfactorily that animals possess reasoning powers, that we allow them also to possess *mind*, or a certain power which exists within, whereby to think, and will, and reason, reason being the indubitable proof of the existence of mind. To make use of a familiar simile, as the pendulum of the clock regulates its motions, thereby rendering it useful, so reason or judgment is a regulator to the mind, by which alone its functions can become advantageous to us. By its power we are led to analyze the ideas the mind embraces, to compare facts together, and by tracing them in their different relations, to discern and pursue what is conducive, and avoid what is pernicious to our worldly prosperity. As it has been said before, if the light of reason be withdrawn, the functions of the

mind are lost or thrown away, for as the clock (to pursue the former simile), if its pendulum or regulator be taken away, is rendered useless, although its *action* is *accelerated*; so if the regulating power of reason be withdrawn from the mind, it is sure (notwithstanding its operations may proceed, and even be rendered more vigorous in conception, as we not unfrequently find is the case with lunatics) to lose its balance, and become good for nothing. The power of arranging and applying the ideas with which it is impressed is lost, and it becomes a complete chaos of confusion.

The above appears to be as *concise* a definition of what is meant by reasoning power as may be.

The evidences by which alone we can judge how far any living creature may lay claim to this faculty, are its actions. To a close observer, I am of opinion this will not be a difficult task, even as regards the brute creation.

“Reason,” says Abercrombie, in his interesting work on the Intellectual Powers, “has been considered to be that power by which we combine means for accomplishing an end;” consequently, if we see any living creature evidently comparing facts together, from which to deduce certain conclusions for its own guidance, and making use of certain means to accomplish an end it has in view, in other words, with an apparent knowledge of cause and effect, we *must* say decidedly, that this animal, whatever it may be, possesses intellectual powers.

Having explained in a few words, and in a way as much in accordance with *common sense* as possible, the nature of reason and the evidences of its existence, I come now to the consideration of instinct, a faculty which is enveloped in much mystery, and exceedingly difficult to be fully explained or understood. “All the actions of animals,” says Dr. Darwin in his ‘Zoonomia,’ “that are attended with consciousness, and seem neither to have been directed by their appetites, taught by their experience, nor deduced from observation or tradition, have been referred to the power of instinct. And this power has been explained to be a *Divine something*, a kind of inspiration, whilst the poor animal that possesses it has been thought little better than a *machine*.” Another description of the instinct to which the actions of the inferior animals are ascribed, is elsewhere given. It is inferred that they are led to perform certain actions “from the repeated efforts of their muscles under the conduct of their sensations or desires.”

Most people consider instinct in one or other of the lights above

mentioned, viz., either that it is an inexplicable *something*, a sort of knowledge supplied to animals for the moment, for their guidance, to enable them to follow pleasurable objects and avoid pernicious ones, or that they are involuntarily led to the performance of these actions from the working of their various appetites and desires. Viewing the matter in either way, it is clearly placing them on a level with "*mere machines*," and denying them in the strongest degree any thing approaching to reason or intellect.

The superiority, then, of reason to instinct, must be so very obvious as scarcely to need a word in elucidation. The intellectual being compared to the creature of mere instinct, is, if I may be allowed the expression, an independent being, so far, at least, as any *creature* can be independent. The former, endowed with the power of thinking and willing, is enabled to admire and luxuriate in the beautiful world in which he is placed, to indulge in pleasing recollection of the past and hope for the future, whilst the latter, without any of these endowments, is merely led to do this thing or that from the promptings of appetite, and its life is much the same as that of the plant, which expands its petals under the genial influence of the sun, and retracts them when cold. Without the power of reflection or anticipation, it cannot possibly derive any pleasure but from the gratifications of the moment, and, under these circumstances, must be thoroughly incapable of assisting in the direction of its own movements.

Having shortly stated the nature and qualifications of reason and instinct respectively, I shall point out the reasons that appear to me to constitute a probability that animals *are* endowed with the mental and intellectual qualifications which I have previously described, and that they are not the creatures of instinct alone, the "*mere machines*" which so many would have them to be.

The *domestication* of animals, whence arises their usefulness to man, would, I believe, had they been *entirely* devoid of reason, have been a moral impossibility. It is not from the force of habit, but by *convincing* them, after repeated struggles, of the inferiority of their powers to man's, that they allow themselves to be subjugated to his yoke, and I contend that where there is no *reason* there can be no *conviction*. Moreover, when we consider the finer feelings of the heart, such as affection and gratitude (feelings that do honour to *human* nature, and are, in my opinion, almost inseparable from intellectual endowments), existing in the breast of animals, nay, existing in a degree so strong as we seldom find even in the breast of man himself, leading them, as can be proved from numerous well authen-

ticated facts, on the death or removal of some kind friend or master, to pine and fret, and even to refuse all food and sustenance until death has arrived from starvation. When we look at these things, can we say that a creature, susceptible of such feelings, is one without reason, and actuated by mere sensual appetite or instinct? If they knew no other pleasure than what they could derive from the momentary gratification of appetite, they could never evince traits of feelings such as I have mentioned. In that case, a favour would be just as agreeable to them conferred by one hand as another, and, provided their sensual desires were satisfied, they would not care by whom or how, nor could they know or wish for anything beyond. This, I repeat, is clearly not the case. "Often," says Burchell, in allusion to his dogs, in his 'Travels in Africa,' "in the middle of the night, when all my people have been fast asleep around the fire, have I stood to contemplate these faithful animals, lying by their side, and have learnt to esteem them for their social inclination towards mankind. When wandering over pathless deserts, oppressed with vexation and distress at the conduct of my own men, I have turned to these, my only friends, and felt how much inferior to them was man, when actuated only by selfish views."

That animals have also a most intimate knowledge of cause and effect, which is a very principal, if not the chief ingredient in intellect, few, who will take the trouble of observing their actions, can doubt. In illustration of this, I will mention an anecdote which was related to me a short time ago by a clergyman of high respectability and undoubted veracity, and which came under his own personal observation. Whilst staying at the house of his brother, who possessed a beautiful little dog of the spaniel breed, my friend, together with the rest of the family, was alarmed about the middle of the night, by the violent ringing of a bell in the house. Every one was, of course, in consternation, and on a search being instituted, the *dog* was found in the dining-room, pulling away at the bell-cord with his teeth. On examining him he was found to be very ill, and had adopted this singular mode of acquainting the family with his distress, and procuring relief. This could not be said to have been the effect of habit or tuition, as he had never been known to do anything of the sort before. *What, then, can we call it, but an evident and decided proof of the dog's knowledge of cause and effect, or, in other words, of his reasoning power.*

That dogs are also acute physiognomists is certain. How many have I known which, on seeing a frown overspread the countenance of

their master, would drop their tail, and shrink away with an evident sense of fear, and on these a smile would have produced a precisely contrary effect. Many also, which are kept as curs for the protection of property, can distinguish immediately from the appearance of the persons with whom they come in contact, whether they are such as call for their interference or not, showing their "respect for persons," by allowing the well-dressed gentleman to pass by unmolested, and, on the contrary, exhibiting every symptom of anger at the ragged beggar. An old dog, of the pointer breed, with which I was intimately acquainted, if he came, during his peregrinations, to two roads, leading from the same point to his own home, let him have travelled both equally, would always select the shortest, even, in some instances, where the difference in distance was so little as to be scarcely perceptible.

Facts in confirmation of my point I might go on relating almost *ad infinitum*, but I will content myself with one more, the accuracy of which I can vouch for myself.

A gamekeeper, in the north of England, had an old bitch, of a cross breed between the spaniel and setter, which was well known throughout the country for its uncommon sagacity. His wife having gone one day to work in a field adjoining the house, leaving no one in it but her husband's canine pet, she was surprised by its running up to her while at work, and by seizing hold of her apron, and other significant gestures, endeavouring to draw her towards the house. Being well aware, from the dog's manner, that something had occurred requiring her presence, she hastened to the house, and on entering, found a quantity of clothes which she had placed before the fire enveloped in flames. She was only just in time to extinguish them, and had it not been for the sagacity of the dog, the building would inevitably have been destroyed. Every one must allow that these are striking proofs that the inferior animals *do* possess reasoning powers in an *inferior* degree to man, I certainly believe, but still of no very limited or mean grade.

It may be said that I have confined my arguments principally in favour of the dog; but if the dog possess intellect, *why not* the rest of the Animal Kingdom, for it is only, I believe, from the dog being placed in a position of more frequent intercourse with man, that his intellect becomes improved, and superior to that of other animals, and the proofs of it are oftener exhibited and observed; and if spontaneously they act with so much apparent judgment, there is no saying, by cultivation of their mind (for that they do possess mind I am

convinced) what they might be brought to do. Sir Walter Scott even seems to have been imbued with this impression, for in speaking of a terrier dog, which he describes as being "the wisest dog he ever possessed," he says that he "taught him to understand a great many words, insomuch that he was positive that the communication betwixt the canine species and ourselves might be greatly enlarged."

The above are a few ideas that have presented themselves to my mind, with regard to this interesting question, and I think it only requires a moderate observation of nature to show the probability of my assertions.

There are some persons who, although they allow the inferior animals the power of memory, viz., of remembering and reflecting on past events, deny that they can *anticipate* or look forward to others in *prospect*. The fallacy of this opinion must be apparent on deliberate consideration, for we cannot reasonably suppose that the gift of memory would have been bestowed, and yet the means of turning it to a useful account, namely, of arranging their future operations by reasoning on past events, withheld.

To conclude with the words of a beautiful writer, "However impenetrable may be the veil which conceals these mysteries from our sight, one thing is clear, that these creatures loudly proclaim the power, wisdom, and goodness of the great Father of the universe, and prove, beyond all cavil and doubt, the existence of a superintending Providence which watches with incessant care over the welfare of the meanest of his creatures."

T. W. BARLOW.

March, 1845.

Food of Animals in Confinement. By the Rev. GEO. MUNFORD.

THE facility with which 'The Zoologist' admits into its pages facts of all kinds which bear upon its subject, seems to invite its readers to communicate every circumstance, even the most trivial, respecting the native habits and economy of animals that falls within their notice: observations, indeed, which at first sight may appear only trivial, may often be extremely valuable when viewed in reference to general conclusions; and information of this kind may be furnished by persons who have but a very slight knowledge of Natural History as a science; it is but necessary to make use of one's eyes and understanding, and this is the way to become naturalists.

In drawing general conclusions, however, from particular facts, we must be careful not to be too positive: thus, when we are told that this or that animal is carnivorous, insectivorous, piscivorous, fructivorous, granivorous, or herbivorous, because we see them usually feeding upon and preferring flesh, insects, fishes, fruits, grains, or herbs respectively, we are not at once to conclude that such is exclusively their food, and that they cannot be supported upon any other. Numerous instances to the contrary might be adduced. I will mention one or two.

Some school-boys who are in the habit of spending their half-holidays in the extensive woods of Earl Fitzwilliam, at Milton, near Peterborough, had captured a squirrel, which was taken home, deposited in a basket, and well fed with nuts. After a day or two it escaped from its confinement, and afforded the boys an excellent chase round the walls of the study; while at liberty, it leaped into a closet, in the corner of the room, in which was a dead blue-cap (*Parus cæruleus*), the spoil of a former excursion to Milton. This little bird the squirrel seized in its mouth, and immediately retreated to its basket, when the lid was closed upon the beautiful and elegant little quadruped, and it was left at peace for a short time. Upon visiting it again, two or three hours afterwards, there were found plain proofs of the carnivorous propensities of this fructivorous little creature; for all that remained of the blue-cap were the tail, and a few other of the larger feathers!

Another instance of apparently aberrant appetite has recently fallen within my own notice.

On the 18th November, 1844, I opened the lid of a deal box, which contained a large mass of common salt, and which was kept in a closet, close to the kitchen fire, when great was my surprise to find hundreds of the larvæ and pupæ of the cheese-fly (*Piophilæ Casei*) deposited in the crevices of the salt, which had been plainly made by these little miners; and in the course of the evening several of the perfect insects were evolved. On the 5th of December following I again visited the salt-box, and found several of the larvæ, numbers of the pupæ and empty cases, and hundreds of the little black fly in the cupboard. It seemed to me so very extraordinary that any insect should feed on a mineral substance, that I consulted the valuable 'Introduction to Entomology,' by Kirby and Spence, but without success. The authors mention, indeed, that even mineral substances have been said to have furnished food to some of the insect race, but they do not seem to give credit to the assertion.

Not satisfied with the search I made in such works as were within my reach, I wrote to an eminent entomologist, and stated the circumstance to him. His reply was, "I wish it was in my power to throw any light upon the subject concerning which you did me the favour to write. Since I received your letter, I have, I think, consulted every work in my library treating on insects, but can find no account of any that have been observed to feed on mineral substances; nor did I ever observe any myself. I will, for the future, direct my attention particularly to this part of the history of my little favourites, and if I make any discovery worth communicating, I will not fail to give you early notice of it. Should you meet with anything tending to throw light upon this interesting subject, I shall be much obliged by your informing me of it."

Here, then, we have two facts, which, if not altogether new, are yet at variance with the assumed formulæ of systematic writers on Natural History. Fructivorous animals will sometimes feed on flesh; and there are animals which will feed on mineral substances.

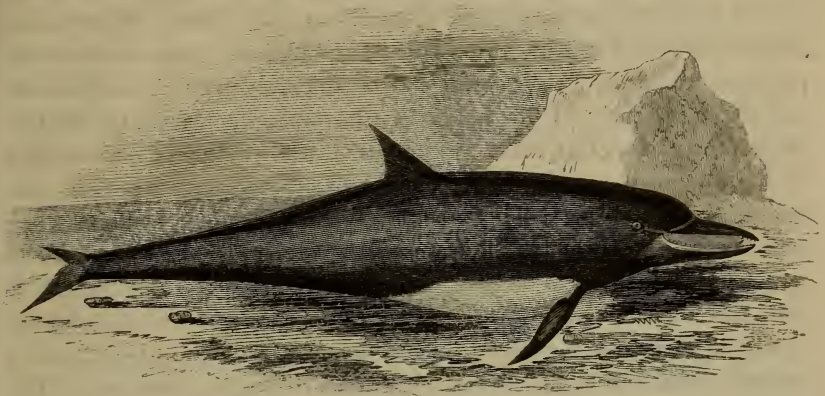
Beautiful as are the examples of creative design exhibited in the universe, and admirable as is the adaptation of one part of Nature to another, there is no department of the creation which can be tied down to certain laws and properties, further than is sufficient for the due performance of its destined functions. The infinitely varied works of the great Author of Nature are not to be unerringly scanned by rules of man's contrivance.

GEORGE MUNFORD.

East Winch, Norfolk, Feb. 8, 1845.

Ilfracombe—Whale ashore! The inhabitants of this favoured watering-place were on Wednesday last in a great ferment, by the arrival of one of these monsters of the deep (it being an unusual visitor to the good folks of Ilfracombe); it was discovered stranded in a cove to the westward of the town, and by the great exertions of the boatmen during the stormy gales then raging, was secured, and safely moored in the bathing cove, at the back of the tunnels, on Thursday evening. It proved to be one of the sperm species, called by Buffon "the blunt-headed cachalot," one of the most valuable kind, which, by the succession of gales, had been driven on our coasts. This was a young one, presumed to be about three or four years old; it measured thirty-seven feet in length, from the head to the tail, and about twenty feet in girth. On Friday it was sold by auction, as a "droit of the Admiralty," by Mr. T. Coats, and purchased by Mr. G. Davis, for £9. 5s. Thousands availed themselves of seeing the stranger during the day. It is now being melted down, and is expected to produce about two hundred gallons of fine oil. — *Cheltenham Examiner*.

Notice of the capture of the common Dolphin (*Delphinus Delphis*) on the Cornish coast. By R. Q. COUCH, Esq., M.R.C.S.*



Common Dolphin (*Delphinus Delphis*.)

SINCE the last meeting of the Society, a fine specimen of the common dolphin (*Delphinus Delphis*) has been caught at Hayle. It came in over the Hayle bar at high water, and remained there till the return of the tide forced it to try to effect its escape. In this it could not, however, succeed, from the shallowness of the water. At this time it was seen by the fishermen, and other persons near the spot; and efforts were made to secure it. During the chase it became furious, and it was only by being tired, that a wound could be inflicted on the posterior part of the body. From this flowed a large quantity of blood, the creature became exhausted, and was finally secured. It has been purchased, and is now deposited in our Museum. In the stuffing the shape and colour have been very well retained. It is seven feet eight inches in length, and three feet ten inches in its greatest circumference. The body is slender, and gradually tapering towards the tail. The head is prolonged into a slender, slightly compressed, cylindrical snout. At six inches from the termination of the snout the forehead suddenly rises, enlarges, and gently slopes posteriorly. The gape is eleven inches and three quarters in length. The teeth are $\frac{5}{8}$ - $\frac{3}{8}$ °, perfectly white, conical, and arching outwards. The dorsal fin is near the centre of the back, being three feet one inch from the tip of the snout, and three feet four inches and a half to the

* Read before the Natural History Society, Penzance, February 4th, 1845.

termination of the tail. It is eight and a half inches high, somewhat crescentic in shape, and slightly arching backwards. The breathing-hole is nine inches and a half from the termination of the snout, and is small. The pectoral fin is one foot in length, rises one foot three inches from the snout, and is situated very low down. The tail is transverse, two feet long, crescentic, and notched at the centre of its posterior margin. The posterior part of the body is much compressed, and extends nearly to the notch on the posterior margin of the tail. In colour it bears but little resemblance to the splendid descriptions of the ancients. It is of a deep black, black-grey and ash tints fading to a white on the belly; and it was not more brilliant when first caught. About half an inch from the point of the snout is a white line, which runs parallel to the gape to near the eye, which is near and slightly above the angle of the mouth, there it rises and forms a narrow white circle round it. The pectoral fins are black, with a central white patch, which extends anteriorly to the lower jaw. The posterior portion of the body is greyish, and mottled with black and white patches. It is a male specimen. This species has been noticed as occurring in Cornwall two or three times before, and Dr. Borlase, in his Natural History, gives a figure of one, but it is much too stout to be a portrait of the present specimen. But the figures of other authors are far more characteristic, and hence there can be but little difficulty in identifying the present species. There is, however, one point in which a variation occurs from the printed descriptions. The teeth are said, by Professor Bell and Mr. Jenyns, to vary from $\frac{42}{42}$ - $\frac{42}{42}$ to $\frac{47}{47}$ - $\frac{47}{47}$, or from 168 to 188; but in the present case they are $\frac{50}{50}$ - $\frac{50}{50}$, or 200. But it seems probable, that where the teeth are so numerous, and liable to vary from 42 to 47 on each side the jaws, the increase of the number to 50, as in the present case, need not be considered of much importance.

This species is said *occasionally* to visit the British shores, but Mr. Chirgwin observes, and in this he is confirmed by the fishermen, that they visit Mount's Bay in large shoals during the summer. I at first supposed that the porpoise (*D. Phocena*) was the species meant, by describing them to be so common, but Mr. Chirgwin says it is the present species, and that the fishermen call it the "bottle-nose." This we hope to be verified during the coming summer. There are six species of *Delphinus* recorded as being caught in the kingdom, four of which have been captured in the Cornish seas; the present species, *D. Phocena*, *D. Orca*, and *D. melas*, the two former of which are now preserved in our Museum.

I have been thus particular in describing the present specimen, from a wish having been expressed in the 'Cornish Fauna,' that such should always be done. For that "there is no class of the larger animals of which so little is definitely known as of the whale tribe;" it is therefore much to be wished, that in every instance where one is taken, or thrown on shore, that measurements and descriptions should be taken.*

R. Q. COUCH.

Chapel-street, Penzance.

Notes on the Birds of the Isle of Wight.

(Continued from page 644.)

By the Rev. CHAS. A. BURY.

I resume my account of the birds of the Isle of Wight with the climbers, in which we are remarkably poor, though it would, I think, be difficult to assign a satisfactory reason for this poverty. We have wood enough, though perhaps not much of old and decayed timber. The want of such trees will, with many persons, probably account for the absence of the woodpeckers, but it does not satisfy me; for I have known the common green woodpecker to abound in other districts not more rich in these supposed attractions. This, however, is certain, be the cause what it may, the *Green Woodpecker*, so generally distributed over the country, and so abundant on the opposite coast of Hampshire, is with us *rarissima avis*. R. Loe has seen it once; and that is the only well authenticated instance of its occurrence I have heard of.

The Great Black Woodpecker has appeared once. The Ven. Archdeacon Hill shot one many years ago in his garden at Shanklin Parsonage.

The Great Spotted Woodpecker is now rare; but was less so once. I have seen three or four specimens that were killed a few years back; but the living bird I have not seen or heard.

The Wryneck is common; particularly in my immediate neighbourhood. Nor is it at all a shy bird with us: I have known a pair rear their brood for years successively in a hole in one of the "up-rights" of a rustic cottage which was inhabited.

The common Creeper is rather abundant. I not unfrequently meet

* During the latter part of February three specimens were caught at Plymouth; and many others have been seen off the Lizard since the specimen described above was taken—R. Q. C.

with it in winter time in Apse copse, and Shanklin copse, associating with the cole tit, blue tit, and gold-crest; and I have seen it several times in Bonchurch.

The Wren abounds.

The Hoopoe has occurred several times. Ten or twelve years ago two specimens were obtained by G. Hatfield, Esq., in Bonchurch; one of these birds is now in the British Museum. April 12th, 1839, a hoopoe was shot at Westbrook, near Ryde. Three have been obtained by Mr. Butler, of Yarmouth. A fine specimen is preserved at Thorley Farm, killed two or three years back by the tenant, Mr. Gibbs. August 1st, 1843, a hoopoe was seen and shot at in Bordwood Forest: it remained in the neighbourhood for several days. And lastly, April 15th, 1844, a hoopoe was seen by myself in Bonchurch. I was standing on my lawn, giving some directions to my boatman, when the bird suddenly made its appearance over the cliff, as if just come in from the sea. It was pursued by two or three small birds, which were immediately joined in the chase by a blackbird and a missel thrush. Mr. Yarrell has said truly, "so remarkable is the appearance of the hoopoe, that once having seen a specimen of the bird, it is not likely to be forgotten:" but I verily believe that, even if I had never seen the bird, I must have known it. Bidding my boatman keep a sharp look out, I ran to the house for my gun; and, on my return, found the bird flying hurriedly about in an adjoining orchard, apparently endeavouring to escape from its persecutors, alighting for a second, and then taking wing again. It either did not observe me, or did not regard my presence; and seeing its evident wish to settle, I would not risk an uncertain shot at it on the wing; presently it did settle, and within twenty yards, most favourably for a shot, except that just beyond it, and, as I feared, in a line, on the opposite side of the hedge, stood my worthy boatman, a friend, and his little boy; and therefore, with all my anxiety to obtain the bird, prudence forbade my firing, as I had no wish to make specimens of my friend, his child, and my boatman: though the last, by the way, is not an ordinary example of his species, fulfilling, as he does most creditably, the threefold office of gardener, groom and boatman. His nautical skill and experience he acquired in His late Majesty's service, having been sent in early life on board a man-of-war, for, as he assures me, the smuggling delinquencies of his mother! But to return to the hoopoe, and record my disappointment, for naturalists, like other men, are subject to occasional disappointments; the bird, after remaining perched for a short time, during which it continued to erect and depress its beautiful crest, took wing, and baffled my

attempts to get again within shot ; leaving me somewhat at a loss to decide whether I ought to consider myself more fortunate in having obtained sight of the bird, or unfortunate in having seen and yet failed to obtain it. On the whole, I am disposed to congratulate myself on my good fortune ; for how many of your readers, how many of the species, or, rather, genus, British naturalist, have succeeded in seeing the hoopoe alive in this country ? — and, what is better, have in their collection a specimen which they can warrant to be British ? For such I have, as the sequel of my tale will tell. On the following morning I was on the alert by six o'clock ; but a neighbour, to whom I had given the hint, was still earlier : and the bird was safe in my possession before seven.

The Cuckoo is as plentiful as in most districts. But knowing as little of this bird's history, as of that of almost any one British bird, I feel disposed to record my ignorance. I may thereby induce some reader of, or writer in 'The Zoologist,' to give the desired information. I am not satisfied that cuckoos do not pair ; though I think they do not. I am not satisfied the female does not utter a note similar to that of the male ; though I think she does not. I do not quite like the story of the young cuckoo ousting its fellow nestling ; for I doubt its physical ability to do so. I cannot feel assured that the cuckoo is so wanting in maternal affection as is commonly believed ; for Mr. J. E. Gray has on two occasions observed the contrary. I am not convinced the cuckoo robs the nests of other birds ; though I think it does. I have never had the good fortune to find a nest with a cuckoo's egg in it ; and have, therefore, lacked opportunity of making observation. Excuse, Mr. Editor, this disclosure of my ignorance and ill fortune : it may bring you a useful and interesting paper from some more knowing and more fortunate correspondent.

The Kingfisher is not uncommon. In the autumn of last year (1844) kingfishers were unusually abundant. I am at a loss to account for this ; but such was the fact. I cannot think all that were seen were bred in the island. Mr. Butler, of Yarmouth, wrote me word in the early part of September, that, during the preceding month, he had thirteen kingfishers brought to him. On my return home, at the end of August, I found a pair of kingfishers frequenting the pond in Bonchurch ; and for many weeks one might be seen on the sea-shore off Dunnose. R. Loe also remarked this unusual abundance ; and told me that other persons had observed and mentioned it to him.

The Swallow certainly remains with us somewhat later than it is

wont to remain in other parts. Last year (1844) I observed several swallows flying about at Luccombe on November 18th. Up to November 9th their numbers had not sensibly diminished; but on that day those that had apparently passed the summer with us disappeared. A great increase in the number of swallows usually takes place early in September. My note-book for 1842 records: "up to November 17th swallows seen in considerable numbers." "Four swallows seen November 25th. November 29th, three swallows and one martin seen at Luccombe; and December 18th, two swallows seen, one at Bonchurch, and the other at Ventnor." The appearance of the swallow in the spring is not correspondingly early. For the last two or three years I have observed its appearance in other parts recorded some days earlier than I have seen the bird here.

The Martin breeds in considerable numbers along the cliffs, especially in the neighbourhood of Shanklin. But the numbers of martins, as of swallows, are greatly augmented in September. They leave much about the same time as, and, I think, in company with, the swallows, as I generally observe birds of both species flying about in flocks just previously to their departure.

The Sand Martin. A colony settles year after year in the cliffs between Shanklin and Sandown; but I do not think the bird is very generally distributed over the island.

The Swift I see for a day or two on its arrival; but it does not breed in my immediate neighbourhood. I have been somewhat puzzled the last two years by the reappearance of a flock of swifts later in the season. June 15th, 1844, I counted thirty-seven flying about over the sea-shore; on the 19th and 20th they appeared again. In 1843 I saw a considerable number, June 14th and 15th; and, in order to ascertain their sex, I shot three; they proved to be a female and two males. I am at a loss to account for their appearance at a time when they ought to have been at home engaged in important business. I do not think they breed within ten miles of Bonchurch.

The Night Jar breeds with us. I found its eggs on St. Boniface Down, among the heather, June 8th, 1843. It is, however, of much more frequent occurrence in the autumn; and the latest period of its stay I have recorded is October 18th.

The Ring Dove is abundant throughout the year; but the number is increased in winter by migratory parties. The residents are, however, said to be rapidly becoming more numerous. R. Loe, when wood-pigeon shooting, in addition to the usual green frock and hut of boughs, by way of concealment, uses as a decoy a stuffed skin,

which he fastens at the top of a tree, availing himself of the well known propensity of this bird to alight where a companion has already alighted. The ring dove in confinement I find to be a dull fellow. He sits dozing all day, apparently taking little notice of what may be going forward; will give an unneighbourly peck at any trespasser on his perch; goes down to feed with the Surat doves, confined in the same large cage; bears most philosophically the flapping which the male Surat dove is pleased to inflict; gobbles up his cropful with all speed; and then returns to his perch, to ruminate on I know not what. Both birds, for I have a pair, are easily frightened, and are not at all sociable; will lose their dinner rather than come down to feed while I am by, though I reared them from the nest, and had the no small trouble of shovelling down their throats peas, barley, bread, water, and gravel three times a day for weeks! They will occasionally exchange pecks with their companion the kestrel, if they chance to find themselves on the same perch with him; but listlessness is their striking characteristic.

The Stock Dove I had despaired of finding; when on December 26th, 1844, R. Loe sent me a pair of these birds, shot by a farmer at Alverstone, in the parish of Newchurch. One or two more were seen. I suspect these birds to have been only accidental visitors, driven hither probably by the severe frost.

The Rock Dove also appears to visit us only occasionally, in larger or smaller flocks; though once it bred—at least so says tradition—in considerable numbers in the Culver cliffs; whence the name is derived. Under the head rock dove, as the supposed origin of the dove-cot variety, I may mention a curious change of habit in one of these birds. Early in the month of January of this year (1845) I was informed that in Appuldurcombe Park a common house-pigeon was seen associating with the ringdoves. R. Loe, while watching for deer, saw it settle in the trees over his head, in company with three or four ringdoves. Mr. H. Loe, the park-keeper, observed it several times feeding in the woods with the ringdoves: and his assistant had noticed it for more than a month. It had acquired all the shyness and wariness of the ringdove; and preferred the society of the wild birds to that of the well-fed flock in the pigeon-house at Appuldurcombe. Jan. 6th it was shot for me by the son of the park-keeper, from amongst a flock of a hundred ringdoves, its crop stuffed with acorns. It has all the appearance of a common dove-cot pigeon, and is what is commonly called copper-coloured.

The common Pheasant is still plentiful where preserved. It was

once abundant in the Undercliff; and R. Loc can remember when nearly every copse in the island was stocked. Sir R. Worsley, in his 'History of the Isle of Wight,' mentions that "formerly this island was plentifully stocked with game of all sorts:" and Henry VIII. issued orders for preserving the pheasants in the island for the supply of other royal manors. I have received from Mr. H. Loc three specimens of what are commonly called "mule birds;" but what are really old hens that have acquired the plumage of the male bird. Their plumage was nearly as brilliant as that of an ordinary cock pheasant, and their tails far more handsomely marked. Two of these birds would seem to have attained such antiquity as to be really dying of old age; for they were little more than skin and bone. One was unable to rise, and was caught by a retriever.

I have an apology for an aviary, formed by enclosing one end of the verandah of my house. This is inhabited by, amongst others, a pair of pheasants. I once possessed a second hen; but the poor bird fell ill, and was so severely pecked by its *sympathizing* companions, that I was obliged to remove it. These birds afford me much amusement, and have furnished me with some information. I was not aware of the variety of the notes of the male. One note, which I had previously heard in the woods, and knew not whence it proceeded, turns out to be the invitation to the female to nest. This cock pheasant will form a depression in the ground, and pull about hay, bents and straws, uttering all the while this peculiar note, and making as much fuss as a Bantam cock of mine, which, when any one of his ladies is about to commence laying, will go in and out of the box placed for the purpose, carry in straws, arrange them, sit himself down in the nest, as if trying how it will do, vastly eloquent all the while, and evincing as much importance in his gait as if the weight of an empire were on his shoulders. Having heard these same notes in the woods, I am rather sceptical of the supposed practice of the hen bird concealing her nest from the male. The same is said of the pea-fowl; whereas I have seen my peacock sitting for hours together, day after day, by the side of the hen, when on her nest. The attitude into which the cock pheasant will throw himself when paying his addresses is very beautiful. He sidles up with tail spread, and turned towards the hen, one wing a little raised, and the other as much depressed, as if to exhibit as large a surface as possible of his gorgeous plumage. Both birds are sad tyrants; and not only do they pull all the feathers they can come at out of their neighbours' backs, but they invariably swallow them withal.

The Partridge is tolerably abundant, I believe, over the whole island. I once witnessed a curious instance of the pairing in public of this bird. I had heard of the rook, the heron, and the starling, but not of the partridge, meeting in grave assembly to choose and be chosen. What I am about to relate occurred in 1837. I was at that time chaplain to the county gaol of Hereford; and resided about a mile out of the town. While on my way to do duty between nine and ten, one Sunday morning in February, my attention was arrested by unusual sounds issuing from the rising ground to the left of the road. I clambered up the hedge-bank, and observed, at about one hundred yards distance, partridges to the number of twenty-one, arranged in very nearly a circle. The clamour they made, very unlike anything I ever heard before or since to proceed from partridge throat, was sufficient to stop every passer by. I thought I could distinguish one voice as if haranguing the assembly, which was occasionally interrupted by this strange chorus. After some minutes' wonderment on my part, and on the part of sundry other persons who had joined me, a partridge, gentleman I presume, crossed the circle, and accompanied by, I have no doubt, the lady of his choice, left the assembly, running off at full speed to the adjoining hedge-row. This was followed by the most uproarious applause of the matrimonial conclave. There was no longer any doubt as to the purpose for which they had assembled; and I waited with no little interest to see the result. There was a renewed chirruping, as if another speech was being delivered, or, as if a second youthful pair was receiving a matrimonial charge from some grave sire or matron of the party; and presently the second pair went off as I have described the first pair to go, their departure being accompanied as before by the most rapturous applause. The same process was gone through till five or six pairs had severally disappeared; when, upon a general shout being raised, the rest of the assembly broke up, each gentleman and lady going off in different directions, though I could not detect what became of the odd bird — the dowager possibly — I had previously counted. This was clearly a case of matrimonial alliance formed in public. It detained me from my duty full twenty minutes. On mentioning the circumstance to a friend in the course of the following week, he wittily remarked, that possibly they were anticipating the new marriage-act, which was to come into operation on the first day of the ensuing month.

I once witnessed, too, the strength of attachment of the partridge for its young. Many years ago, when residing in Monmouthshire,

returning late one evening in the month of June from a walk with a younger brother, I heard the tongueing of a spaniel in a field of wheat a short distance from the house. The loud call and alarm-note of a partridge was also occasionally heard, and suggested to my mind what proved to be the fact, that the aforesaid spaniel was amusing himself with hunting a young covey. I proposed to my brother to go and call off the dog: the fellow, however, was too intent upon his sport to obey our summons, or heed our threats, and the alternative of trying to rescue the brood, which we could hear crying 'peep peep' around us, was adopted. The young birds could not, I should think, have been hatched many hours: and though it was now so dark that we were guided only by their plaintive cries, we succeeded in capturing five, which were deposited in my cap, laid on the ground for the purpose. One old bird was doing its best to draw off the dog, by fluttering just before its nose, as if wounded and unable to escape. But what was my surprise, when, returning to my cap with another chick, I laid my hand on the other old bird, which was actually covering the chicks previously placed therein. On my touching it, it flew off some few feet, and while I, more than half frightened by the unexpected noise of the bird's rising, remained fixed to the spot, he or she, it was too dark to distinguish which, positively returned to within a few inches of the cap; but again started on my moving. We carried the chicks home, till we had succeeded in calling off the spaniel, and then replaced them, wrapped up in flannel, in my cap. On visiting the spot early next morning, we found only one little dead chick in the cap; the rest had no doubt been led away by the parent birds.

The Quail is not found very frequently; and those that do occur are, I imagine, usually birds of passage, on their way out of the country. R. Loe has, however, known the quail to breed once at Newchurch. A few years ago a bevy was fallen in with early in September, in the parish of Whitwell: Mr. Simeon writes, under date Dec. 30, 1844, "The quail is *rarissima* with us. I have never seen it here alive. I remember hearing of a bevy near Ryde many years ago, of which two or three were shot: and one was killed by Mr. Jolliffe, our tenant at Bowcombe about six weeks since. He informed me that the bird had been for some time haunting his turnip-fields, but that it had no companion." I also saw one last autumn, which was caught by a dog at Newchurch, about the same time as that mentioned by Mr. Simeon. Mr. Butler of Yarmouth caught a quail a few years back, on Christmas day.

The Great Plover is with us little more than an occasional visitor. It is, moreover, generally late in the autumn that this bird is seen. The specimen in my collection was one of a party of six, shot by Mr. Jolliffe in Bordwood Forest, during the first week in November, 1843. R. Loe assures me he has seen this bird much later in the year. He knew a pair to breed once on the Wacklands estate.

The Golden Plover also visits us at uncertain periods, but usually in severe weather, in smaller or larger flocks. February 18, 1843, five golden plovers made their appearance, during a snow-storm, in Bonchurch. Two of these birds came into my possession. There are certain fields in the parish of Newchurch — a wonderful parish your readers will think this same Newchurch, from my constant reference to it. For their information I will state that this said parish includes both Ryde and Ventnor, the one on the northern and the other on the southern shore, distant apart, as the crow flies, between nine and ten miles; and that it has, in addition to its extent, other advantages to recommend it to the naturalist: for within its limits is to be found all the variety of scenery his heart can wish; extensive woods differing in character, marsh-lands intersected by a river, open downs and wild forest covered with furze. But it presents an additional and no inconsiderable attraction to me: for in the village of Newchurch resides, and has resided for fifty-eight years, that worthy and respectable ally of mine, of whom, I trust, your readers are not tired of hearing, Robert Loe. Consequently I am better acquainted with the animal productions of Newchurch, than with those of any other part of the island, except, perhaps, my own immediate neighbourhood: for not only have I had R. Loe's large stores of information to draw upon, but partiality for a walk and gossip with him has taken me pretty frequently into the neighbourhood, and enabled me to make personal examination of nearly every nook and corner worth examining. There are, then, in this parish of Newchurch, certain fields, wherein, if a golden plover be in the country, it is sure to be found. And this same partiality for certain localities is a curious subject. It would, I think, puzzle a featherless biped to detect any particular attraction in these fields. In the same parish, certain other localities are equally attractive to some other species of birds. For instance; there are three or four fields of comparatively few acres in extent; and whichever of these fields happens to be in turnips, is always frequented by snipes, to the number of sometimes nearly a hundred; which, by the way, are always agreed in one — to the shooter — very bad practice.

For as soon as one of the number is flushed and fired at, the whole party make a point of immediately absconding. Now, why the snipes should congregate for their day's snooze, as I suppose, in that particular spot, I can discern no earthly reason. There are plenty of turnip-fields much nearer better feeding ground, although there is something approaching to marsh in the neighbourhood. Lower down the marshes there are certain withy-beds; and he would be a clever fellow who should say why they are not equally attractive to snipes: and yet one of these almost always contains snipes and the others never; so much so, that R. Loe and other regular frequenters of the marshes, always try the one bed and never try the others. Mentioning one day to R. Loe that I had found five teal in a particular cut, his reply was, "They are sure to be there, if anywhere." Why so? One cut resembles another very nearly; the water, the plants are the same; and I could point out many situations quite as favourable for concealment. There is another spot where Jack snipes abound, but their larger congener is never seen. How little do we know of the habits of birds! I admit that sometimes an apparent reason for such partiality may be surmised; but, at times, I, at least, am completely at fault. I beg pardon, Mr. Editor, for this digression. Use your own discretion about printing it. But it may elicit something from the more knowing; and I am quite as desirous to be taught as to teach, in the pages of 'The Zoologist.'

The Dotterel. The only instance of the occurrence of this bird I am able to record, is given on the authority of John Simeon, Esq., who, with his brother, once found two dotterels, one of which they obtained, on Freshwater Downs.

The Ringed Plover is common on the northern shores of the island. I have seen a small flock twice only on the shore at Bonchurch. Mr. Butler has known it to breed in the neighbourhood of Yarmouth.

The Grey Plover I give on the authority of Mr. Butler, who has obtained it three or four times at Yarmouth.

The Lapwing breeds, and remains throughout the year with us; but is not numerous. Now and then a lapwing appears in the Undercliff; but in Sandham Flats, and in the neighbourhood of Pan Common, a few may commonly be seen.

The Turnstone I have seen but once. Walking on the shore at Bonchurch, August 23, 1841, a turnstone alighted on a rock within twenty feet of me. Having no gun, I thought I would try what I could do with a stone. The missile passed within an inch of the bird;

which bobbed its head, and awaited not a second trial of skill. This is the only instance known to me of the occurrence of the turnstone.

The Oyster-catcher is not at all common. I have seen one that was shot at Freshwater; and another in Sandown Bay. A pair passed occasionally during May, 1844; and was seen on the rocks at Luccombe several times. And on October 5, 1844, the boatman ran up to tell me there was a curious bird settled on the pier at Bonchurch. It proved to be an oyster-catcher; and had been seen in the neighbourhood some days previously.

The Common Heron frequents the whole extent of marsh-land from Newchurch to Brading-harbour. Indeed I seldom visit the neighbourhood without seeing one or two, sometimes three or four. A pair of herons built a nest, and eggs were laid and taken, some years back, at Grove, in the parish of Brading; but I do not think the heron has bred in the island of late years. I should hardly have expected that this bird was the natural quarry of the peregrine falcon; yet what was observed on two occasions, and related to me by credible witnesses, would seem to decide that it is so. On the one occasion, a pair of peregrines was observed to attack a heron, much in the same manner as is described in books on hawking. One bird rose and struck at the heron, which, in its endeavour to avoid the blow, exposed itself to the stroke of the other falcon from beneath. The second instance of a combat between a peregrine and a heron, has a touch of the ludicrous in it. It was witnessed by a carpenter, of the name of Young, and occurred not half a mile from the village of Bonchurch. The said Mr. Young was busy tarring some rails at no great distance from the river, when he observed a peregrine make repeated swoops to the river's brink. With a very laudable curiosity he proceeded, tar-brush in hand, at his best pace, to satisfy himself as to the cause of this phenomenon. On his reaching the river, he discovered poor "Jack," for so is the heron familiarly designated, crouched down under water, his head only protruding. Supposing the bird to be disabled, he thought to make a capture of him; and, with such intent, endeavoured to catch Jack's head with his long-handled tar-brush. Our sapient carpenter had, however, reckoned without his host: for the heron had evidently submerged himself only to avoid the blows of the falcon; and before the brush could be passed over his head, to the astonishment of Mr. Young, he emerged and took wing. Scarcely, however, had he risen, when down came the falcon; whence, surpassed the conceptions of our hero, for he thought that the heron and he were now the only actors in the drama; and, to adopt his own ex-

pressive language, he "hit Jack such a thump, that the dust flew out of his back like a miller's bag." This blow did so far disable the heron as to prevent his rising again; or, as I opine, he deemed the carpenter with his tar-brush a less formidable enemy than a peregrine falcon, and therefore preferred trying a race with Mr. Young, to essaying another flight with the falcon: and such good use did Jack make of his legs, that he was the first to reach a withy-bed, wherein he baffled both his opponents. I fully agree with Mr. Waterton, that the injury done by the heron is not enough to call for his destruction.

The Little Bittern. On the authority of Mr. Butler, I give this rare bird as having once been obtained in the Isle of Wight.

The Common Bittern, though only an occasional visitor, has occurred not unfrequently within the last few years. My neighbour, E. Peel, Esq., who once made a collection of British birds, obtained three island specimens. R. Loe has shot three or four. Lord Yarborough's keeper shot one at St. Lawrence, in 1840. Mr. Butler has met with the bittern three or four times; and one was shot in Parkhurst Forest so lately as during the winter of 1843-4. R. Loe tells me that it is in severe weather the bittern visits the island.

Although I cannot include *the Spoonbill* in my list of the birds of the Isle of Wight, it may be worth mentioning that three spoonbills (two adults and one in immature plumage) were shot in the New Forest during the last week in October, 1841. They were brought into Southampton, where they were seen by my friend, Sir Raymond Jarvis, who kindly purchased one, and presented it to me.

The Common Curlew abounds during the winter on our northern, but very seldom visits our southern shore. I have seen twenty together on the mud at Ryde; and saw one there so late as May 7, 1840.

The Whimbrel is almost as common as its congener, I am not sure I should be wrong in saying, quite as common. About Yarmouth, flocks of whimbrels are seen from early in the autumn till late in spring. I have received a specimen from that neighbourhood, shot June 3; and I saw a solitary bird on the mud-flats off Lymington last year, on July 12. How came these birds there so late in the season? They surely ought to have been far from these parts, attending to domestic matters. Brading Harbour and Sandown Bay are frequented by the whimbrel. May 1, 1842, a flock, consisting of nine birds, settled on the rocks off Bonchurch, and allowed me to approach within thirty yards of them.

The Redshank, according to Mr. Butler, appears occasionally at Yarmouth during winter.

The Green Sandpiper. A pair of these birds breeds regularly in the marshes near Yarmouth, as recorded by Mr. Yarrell. October 26, 1843, I obtained a specimen, shot in Appuldurcombe Park: it had frequented the neighbourhood for some weeks. During the preceding summer another was seen frequently on a pond at Wacklands. May 1, 1844, I flushed a green sandpiper in Newchurch-marshes: it was not to be found on the following day, or subsequently. Dec. 13, 1844, I received a specimen, shot the day before near Newtown.

The Common Sandpiper frequents the sea-shore, and puzzles me. Two or three pairs usually make their appearance at Bonchurch about the end of April. There they remain till I leave home about the first week in July; when I return towards the end of August, there they are still, and not always increased in number. In the summer of 1842, three sandpipers frequented the shore; I saw them nearly every day; I heard them nearly every night. I left them there when I went from home in July; I found them still there on my return in August. These birds could not have bred. Others have puzzled me nearly as much subsequently: for I have left the pair on the beach, and, on my return, found a family party. If they bred with us, they commenced business very late. Incubation had not commenced certainly when I left home, or I should have missed one bird: and when I returned, I could scarcely distinguish the young from the parent birds; for they were full grown.

The sandpiper is said to betray by its anxiety the presence of its nest. It may be so; but I was once fairly beaten by one of these birds on the bank of a loch in the Highlands. I passed the spot every day nearly, on the way to my fishing-ground; and every day did I flush this bird, detecting it running before it rose. One day I determined I would find the nest, which I could not doubt to exist in the immediate neighbourhood. I laid down my fishing traps, and commenced a deliberate search. The bird, which had flown only some twenty yards, immediately returned, and squatted on a stone close to me, as if to watch my movements. It would allow me to approach within six feet. I hunted for a full half hour; but all in vain. While there sat the bird, uttering its low, prolonged, plaintive pipe, but showing no symptoms of alarm. Indeed, as if satisfied of the security of its nest, it preened itself, and, except for its note, appeared perfectly at ease. I suspect the nest was not quite so near as I supposed it to be; and that the coolness of the bird resulted from a consciousness of having set me on a wrong scent.

I once witnessed an instance of the power of diving possessed by

this little bird. When a boy, the summer snipe was a favorite mark; and having one day shot at one, it dropped close to the edge of a considerable rapid of the river Uske. There it lay, with wings expanded, dead, or nearly so, as I supposed; but on my approaching to pick it up, it scrambled into the water, and in an instant, under it went, to my amazement; and for several feet could I distinguish it, making its way directly across a stream so rapid, that though only knee-deep, I could not have stood in it. I saw it no more.

Early in September the number of sandpipers on the sea-shore increases; I have counted as many as fourteen in a flock: and towards the end of the month they take their departure.

The Greenshank is met with occasionally. I have in my possession the *shanks* of one, shot, in 1841, on a pond at Winson, in the parish of Godshill; and another bird in my possession was killed by Mr. H. Dennett, at Newtown, in August, 1844.

The Bar-tailed Godwit is to be met with in the spring. May 8, 1841, one was brought me that had been struck down into the sea by a peregrine; and on the following day, my friend, the Rev. J. F. Dawson, obtained another. Both these birds had attained nearly their full summer plumage; only a few light feathers remaining upon the ferruginous breast. A female, shot in Sandown Bay, May 18, 1844, now in my possession, had scarcely commenced the change; while in two birds procured about the same time at Yarmouth, the change was beautifully complete. A third bird, in the possession of Mr. Butler, was in winter costume; but I omitted to make a note of the date of its death.

The Ruff. Mr. Butler informed me he once obtained a pair, and in winter. In August, 1844, a reeve, shot at Newtown, was sent me by Mr. H. Dennett.

The Woodcock, though pretty generally distributed over the island, is seldom abundant; occasionally, however, in the spring, flights appear to drop on their way out of the country. I heard of forty woodcocks being found one day, in the spring of 1844, in Parkhurst Forest. The woodcock has been known to breed not unfrequently in the island. At Swainston, the seat of Sir R. Simeon, Bart., are preserved an old bird and four young ones, found by one of the keepers in April 1834, in a wood between Swainston and the sea. In the same year, Mr. Simeon informs me, a nest with eggs, which, he believes, were hatched, and the brood safely reared, was found in Parkhurst Forest. Mr. Simeon further states, that "a Mr. Robinson, who was formerly a resident in the island, had, in his collection of birds, woodcocks in

every stage of growth, from the egg to the full-fledged bird, all obtained in the Isle of Wight. R. Loe also has known the woodcock to breed in the island several times. It would almost seem that this bird remains to breed in this country more frequently than it used to do. One of the keepers in the New Forest told me that last spring (1844) he knew of four nests.

I cannot satisfy myself that there are not two distinct species of this bird that visit this country. All sportsmen, as well as writers on Natural History,—and indeed not less the eaters than the killers and writers about this delicious bird, must have observed the great difference of size in individuals; but many old sportsmen go further. Captain Lacey, in his ‘Modern Shooter,’ writes, “I never met with more than two kinds of woodcocks; the one, the common muffed, or muffed cock, of which the female is generally the largest; and the other, a much smaller bird, of darker plumage, and of later arrival, generally called the little black cock.” Now certainly this experienced sportsman is far from singular in his opinion, that there are “two kinds of woodcocks.” The names he has given his supposed species were familiar to me twenty years ago, in Monmouthshire; and Captain Lacy only expresses, in the above extract, what was, I believe, the received opinion throughout the county, with this difference, that the little black cock was thought to come earlier instead of later than the muffed cock. Size and shade of colour are, I admit, poor criteria for distinguishing species; but I remember other and better—I do not say positively good—distinctions. The feathers of the neck of the larger bird were proportionally longer and larger, giving a fulness of appearance to that part; and hence the name “muffed” or “muffed:” while the bill and the tarsus of the smaller bird were not only relatively but absolutely the longer. If I am correct on this point,—I am by no means certain that I am, for I am giving a general impression only, which has remained on my mind for twenty years unrefreshed,—I think the specific distinctness of the two birds ought to be admitted, especially if there be taken into consideration certain differences of flight, which I think will be found to exist. Certainly the flight of the larger birds varies on different days; and, even on the same day, the same individual will fly much more rapidly at one time than at another. I have seen the muffed cock go off with a rapidity hardly exceeded by the swoop of the falcon; at least, such was the impression left on my mind by the flight of two birds I saw flushed last winter: and the flight in the evening, when the bird was on its way to the feeding-ground, has always, when I have witnessed it, been

exceedingly rapid. But at other times, its flight is as heavy and as slow as that of the tawny owl. Now, the flight of the little black cock is, I think, always uniformly rapid, or nearly so. But it is at the rising of the two birds that the difference is most remarkable. The black cock makes no noise. I am sure I have seen it rise when I could not hear it; quick as thought, with an uneven flight, nearly resembling that of the snipe, it was gone before I could bring my gun to my shoulder. While the muffed cock rises steadily from the ground with as much noise sometimes as a hen pheasant, and at first, that is, while *rising* to clear the covert, with a motion of the wings almost as rapid.

I offer these observations in the spirit of enquiry, in order to draw the attention of sporting naturalists to the subject. My recollections of the little black cock are of twenty years' standing: for the few woodcocks I have seen alive of late years have certainly all been the muffed cocks. I therefore write with diffidence, and with the hope that more competent persons will be able to set at rest this interesting question. [See Zool. 903].

The Great Snipe I can ascertain to have been killed three times only; — once by Mr. F. Worsley, once by Mr. H. Dennett, and once by Mr. Butler.

The Common Snipe used to be found in much greater numbers than it is now found. R. Loe tells of days when in Bordwood Forest he exhausted his powder-flask snipe-shooting; of nights, when he formed one of a party netting snipes in the marshes; and has showed me spots, wherefrom, on the report of his gun, a hundred have taken wing. But these are stories of the olden time. Drainage and cultivation have doubtless done much for the country, but not for snipes, or snipe-shooters; unless, perchance, they have driven the former to parts where the latter are not of the quality of R. Loe, who "looks right" too certainly to give a chance to either snipe or anything else that comes within range of his barrels.

I have on two occasions found snipes on the sea-shore in hard weather. On the setting in of frost the number of snipes greatly increases; but after about the third night they disappear, crossing to the continent, as I imagine. Snipes vary greatly, both in size and colour. Whether the larger be only the older birds, or are strictly or properly varieties, I am not competent to say. The difference in size is certainly great: of two birds, killed the same day, one weighed five and a quarter ounces, and the other only three and a quarter; and yet the smaller bird was the plumper. Mr. Butler informs me he has known

the snipe to breed in the marshes about Yarmouth; and my friend, Mr. Peel, once flushed on Black Down, in the month of June, six snipes in company. This looked very like a family party.

The Jack Snipe is sufficiently numerous to afford ample amusement and practice to young shooters. I have, however, known it to spoil the expected sport, by going clear away after the first shot. I have occasionally heard the Jack snipe "speak" when flushed, though not so loudly as the "full snipe." I have, too, observed that the borings of the Jack snipe are frequently *double*, by which I mean that it has thrust its mandibles into the soft mud *open*. These borings were not deep; never more than half an inch: and sometimes they were mere impressions of the points of the bill, separated as much as two, and even three lines.

Mr. H. Dennet killed, in the summer of 1842, on the banks of the Medina, between Newport and Cowes, four birds, corresponding very nearly with Mr. Yarrell's description of the *Brown Snipe* (*Macrorhampus griseus*). The length of the bill and size of the bird agreed perfectly; the plumage varied somewhat. Mr. Dennett could find no such bird in Bewick; nor had such a bird been seen previously by any of the knowing ones. Unfortunately, they were not preserved. My opinion is, that they were veritable examples of *Macrorhampus griseus*.

The Curlew Sandpiper. I saw, in the spring of 1844, in the possession of Mr. Butler, a specimen of this bird, which he had shot, in the preceding winter, amongst a flock of dunlins, in the neighbourhood of Yarmouth.

The Knot Mr. Butler obtains occasionally at Yarmouth. August 13, 1844, I shot a bird of the year on the shore at Bonchurch.

The Dunlin abounds during winter upon our northern shore, and in Sandown Bay. In 1844 I obtained two dunlins, in full summer plumage, one in Sandown Bay, May 9; the other at Bonchurch, May 18.

The Purple Sandpiper I first obtained October 28, 1842. On that day I killed a pair at one shot; on the 31st, another pair, also at one shot. November 5, I obtained four more; and in the course of the winter I saw three or four others. They were usually in pairs; and so fearless as to allow me to approach within four or five yards. A remark in my note-book runs thus: — "How comes it, that this bird, never seen here before, is so numerous?" In the winter of 1843, I saw but one; and only one did I see in 1844. On rising, this bird utters a feeble note. Its food is the sandhopper.

The Land Rail breeds with us but seldom; but is usually abundant during the latter part of September and the early part of the fol-

lowing month. I have had one brought me, which was caught alive in Bonchurch, so late as October 26th. R. Loe showed me a little piece of damp ground on Pan Common, where he one day, a few years back, found ten landrails, and bagged nine of them.

The Spotted Crake appears to be a *winter visitor* with us. I have a specimen that was caught in Bordwood Forest, October 1, 1842. R. Loe has killed three, all in winter. Mr. H. Dennett has killed three, also in winter: and Mr. Hodges killed one in February, 1844. These are all the instances of its occurrence I have been able to ascertain.

The Water Rail is also a winter visitor. I cannot ascertain that it has ever been seen during summer. In 1839 I found two, and shot one of them, as early as September 12th; but, from the situation in which they were found, I am satisfied they were migratory birds on their passage along the coast, most probably to the eastward, intending to cross the channel where it is narrowest; as I think many of our smaller short-winged birds do. I fell in with these birds among some brush-wood, on the slope of the cliff some two hundred feet above the sea,—no situation for a water rail to frequent,—and had they been there many days, I must have found them before. In the winter, water-rails are common enough; I have found one during two winters at a spring within a stone's throw of my house at Bonchurch. This winter (1844-5) they have been unusually abundant. My friend Mr. Dawson and self found six in one day, in January, in the marshes; and a few days after, we found five in the same osier-bed; and this, with the aid of my Newfoundland dog only. On the first day we bagged four, and on the latter, three of those we found.

The Moorhen abounds, and breeds with us. Last year (1844), a pair reared their family on a pond by the road-side in the village of Bonchurch. The female of this pair amused me not a little one day in the autumn. She had found an apple of moderate size, and was busily feeding on it by the water's side. Twice did it roll into the pond, and was as often drawn out and up the bank by the bill of the bird. I watched her, thus engaged, for some minutes; when, on the approach of a Muscovy duck, as if afraid of having her prize forcibly taken from her, she raised the apple in her bill, and ran off among the sedge. I marvelled somewhat to see the bird feed on the apple, but much more to witness her power of raising the apple, and carrying it with her bill. I entirely agree with Mr. Atkinson (Zool. 498) that the moorhen has not the power of remaining submerged in open water;

but, that it is by grasping weeds, or some other substance, under water, that it maintains itself in a state of submergence.

The Common Coot used to frequent, during winter, West-mill Pond, a piece of water which existed till within these two years near Carisbrook Castle. As many as twenty coots usually past the winter there. They were never disturbed, under the impression that they served as a decoy to other wild fowl.

The Grey Phalarope is found pretty frequently about Yarmouth. In the winter of 1843, Mr. Butler obtained a perfectly white specimen. I have one which was killed on a pond at Rew Farm, on the Appuldurcombe estate. R. Loe has occasionally met with this pretty little bird in Sandham-flats, and Newchurch marshes.

CHAS. A. BURY.

Bonchurch, February 26, 1845.

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from p. 863)

DIVISION III.

Hobby, *Falco Subbuteo*. This is the greatest enemy of the pipits, the flocks of which it is often seen pursuing. It passes through Belgium during the latter days of August or first fortnight of September, and in spring, in March, April and May. It is one of our rarer Falconidæ.

Merlin, *Falco Æsalon*. Feeds chiefly on quails and partridges. Regularly seen in uninhabited mountainous and marshy districts in spring and autumn. Sometimes, but very seldom, a straggler is seen in winter.

Goshawk, *Astur Palumbarius*. Very scarce. Leaves in autumn and beginning of winter. Makes sad havoc amongst the tame pigeons, its principal prey.

Kite, *Milvus vulgaris*. This scarce and very shy bird is a regular visitant in spring and the first winter months. Its beautiful flight has been admired by every one who has seen it on the wing.

Hen Harrier, *Circus cyaneus*. Scarce. Only seen in spring and autumn, in the fields of the flat country.

Short-eared Owl, *Otus brachyotos*. Is seen in the whole of Belgium, from the last fortnight of September to the first three weeks of November, and again in spring. It is not a rare bird.

Pied Flycatcher, *Muscicapa luctuosa*. A silent and solitary bird.

It is seen on its passage in April and September, when, in some parts of the country, it seems to be common.

Ring Ouzel, *Merula torquata*. Some appear every year, in spring and the end of autumn. They generally keep in small flocks. It has not yet been known to nidificate in Belgium.

Redwing, *Merula Iliaca*. Very common in March and October. It is generally seen about a fortnight later than the song-thrush. Vast numbers are annually destroyed by means of nets, nooses, &c. to supply the town markets.

Lesser Redpoll, *Linaria minor*. Not uncommon on its passage in April and autumn.

Wood-lark, *Alauda arborea*. Common in spring and autumn: gregarious.

Meadow-pipit, *Anthus pratensis*. Very common towards the end of September and in March. Numbers are taken and sold with the skylark, to supply the tables of our epicures. Some few are said to breed on our shores.

Fire-crowned Gold-crest, *Regulus ignicapillus*. Seen regularly on its passage in March and April, and from the 25th of August to the beginning of October. This bird is generally seen among oaks and shrubs, and but seldom with its congener, the common gold-crest, on the fir. Some few are suspected to remain and nestle in the mountains. I have not remarked that its note-call differs materially from that of the common bird, as Mr. Hoy remarks. It is very seldom seen in company with the *Regulus cristatus*, and does not keep in families.

Stock Dove, *Columba ~~Aenas~~*. Its appearance in autumn and the first spring months is very irregular. This scarce pigeon is a solitary bird, and is never seen to assemble in flocks. It is said to build in our forests.

JULIAN DEBY.

Lacken, February 3, 1845.

(To be continued).

Occurrence of the Griffon Vulture in Ireland. "V. fulvus, Linn. Fulvous, or golden vulture. Of the occurrence of this, the first individual either of the genus or species hitherto recorded in the British Isles, I have received the following particulars from my friend Mr. Ball, of Dublin, who obtained the specimen from the Earl of Shannon, and has deposited it in the Museum of Trinity College, Dublin. The bird, which was until lately alive at his lordship's residence at Castlemartyr, and was supposed to be an eagle, was recognized by Admiral Bowles as a vulture, and attention drawn to it in consequence. It had been taken about a year before on the rocks in

Cork Harbour, and when brought to Lord Shannon's was in perfect plumage, and presented no indications of ever having been in confinement. From this it does not seem likely that it could have escaped from a ship; on the contrary, there is more reason for considering it a rare occasional visitant. Again, being a European bird, and extending its range as far as Switzerland, it was at least as likely to have occurred as the Egyptian vulture (*Neophron percnopterus*, Linn. sp.), which has been met with once or twice in Britain."—*Fauna and Flora of Cork*.

Occurrence of the Iceland Falcon and Rough-legged Buzzard in Northumberland. An immature male of the Iceland Falcon (*Falco Islandicus* of Hancock) was shot in the vicinity of Bellingham, Northumberland, the beginning of last week; it is now in the collection of C. Adamson, Esq., of this town. To-day I have seen a fine variety of the rough-legged buzzard (*Buteo Lagopus*) also procured in the same fruitful locality.—*Thos John Bold*; 24, *Cloth Market, Newcastle-on-Tyne, Jan. 30, 1845.*

[The following more detailed statement appeared in the *Morning Chronicle* of the 6th February:—"A specimen of the Iceland falcon (*Falco islandicus*) was shot near the North Tyne, last week. It was a young male bird of the last year. This species was for a long time considered identical with the Gyr falcon, of Greenland, until the difference was pointed out by Mr. J. Hancock, during the week that the meetings of the British Association for the Advancement of Science were held in Newcastle. It is a very rare species in England, few instances of its capture being on record. In Iceland it appears to be not very uncommon during the summer months, where it breeds, but its equatorial migrations do not generally bring it so far south. The flight of these birds is powerful in the extreme. Montagu reckons that of the peregrine falcon (which is a closely-allied species to the present, but smaller) to be 150 miles an hour. At this speed, the distance from Iceland to this country would be easily performed. The present bird, which is now in the possession of Mr. Charles Adamson of this town, was in good condition, weighing 2½ pounds."]

Supposed occurrence of the Chanting Falcon in Suffolk. The following paragraph is copied from the 'Kentish Gazette' for the 18th March, which has just reached me. I presume the account may be relied on; and, at any rate, your notice of it will be sure to be seen by persons resident in the neighbourhood, some of whom will, I dare say, be good enough to confirm it if true, or contradict it if false. The newspaper paragraph is headed "The Chanting Hawk.—A few days since a gentleman shot in the neighbourhood of Hasborough a very curious bird, called the chanting hawk, or *Falco musicus* (*Daudin*). It is a native of Africa, and is very seldom seen in this country. Cuvier says it is the only bird of prey that sings agreeably. In size it equals the goshawk. Its plumage is grey above, white, barred with brown on the lower part of the back, and on the under part of the body. It is preserved by Mr. Spinks, hair-dresser, North Walsham, where it may be seen." Perhaps Hasborough should have been written Happisburgh, as this is the only place likely to be intended, which I can find in the map of Norfolk, near North Walsham, and it lies on the eastern coast. It may be useful to mention, that there are several specimens of this falconine species in the British Museum, under the name of *Melierax musicus*, which comes into the subfamily *Circinæ*, according to Mr. G. R. Gray ('List of the Genera of Birds,' p. 6). The specimens in the Museum are labelled as from South Africa and the Gambia, which would give the bird the range of the greater part of the continent of Africa. I will add, that a figure of the chanting falcon will be found at page 307 of the *Habits of Birds* in the 'Library of Entertaining Knowledge,' where a few interesting particulars are given on the authority of M. Vaillant. It is stated that "the male is

remarkable for its song, which it utters every morning and evening, and not uncommonly continues the whole night. Each strain is continued in a loud tone for more than a minute, and after a pause it begins anew. While it is singing it is so regardless of its own safety that any one may approach very near it, but at other times it is suspicious, and takes flight on the slightest alarm." The author (Mr. Rennie, I believe), introduces the above statement, as showing an exception to the rule which generally prevails, of the power of song being confined to the smaller kinds of birds.—*Edward Sladen ; Warnford, Hampshire, March 22, 1845.*

Habits of the Kestrel. A pair of kestrels being observed breeding in the neighbourhood of Bicester, a gin-trap was set near the nest, and five males were caught on five successive days ; the three first in fully adult plumage, the fourth still showing marks of the first year's plumage, in the traces of bars on the tail, &c., and the last, a young male of the year, in complete female plumage, so as to have been mistaken for the female till I pointed out the sex. It is no new fact, that there is always a *reserve* of unpaired birds ready to supply deficiencies caused by death ; but this curious instance seems to show that there is a degree of precedence observed in the selection, and that the young and immature birds are only called in to fulfil the duties of propagation in failure of those in full vigour and maturity. In another instance, a female kestrel had been shot on the nest, and hung suspended on the boughs of the tree, which had entangled her in falling. In the course of the day the male was seen to tear down the carcase of his deceased partner, carry it off to a short distance, and proceed to make a meal of it—a piece of conjugal cannibalism somewhat at variance with the proverb that "hawks don't poke out hawks' een."—*F. Holme ; C. C. C., Oxford, March 26, 1845.*

Nudity of the Rook's Throat and Forehead. The notes on the cause of the nudity of the rook's throat and forehead, by A. E. Knox, Esq., and the result of his experiments published in a former number (Zool. 628), whereby he concludes, from his imprisoned captives retaining their nasal feathers, &c., that the nudity in question is the result of the bird's digging propensities, do not appear to me so satisfactory as to admit of no further doubt. Birds in confinement are often known to lack that perfectness of moult, assumption of colour, or other marks of maturity which their wild brethren exhibit ; nor is this to be wondered at when we consider the great change from their original habits ; pent up in a narrow cage, or confined space, perhaps deprived of much food that is natural to them, and acquiring tastes totally at variance with their fellows, as in the case of Mr. Knox's carnivorous rooks. Mr. Knox commences his observations and experiments by placing eight young rooks under a crate, four of which were subjected to a diet of oatmeal, boiled potatoes, &c., the other four being allowed animal food, which it appears agreed best with them, as the former ones died in a fortnight. The *carrion* rooks lived on, and with the exception of one which escaped, arrived at the period of their autumn moult, when one of them died ; another perished soon after moulting, and the last survived but to complete the second moult ; neither of these birds showed any appearance of losing their frontal or nasal feathers, thus proving that rooks in confinement do not acquire their mature characters, even in the second year, not that an apprenticeship to their digging parents will alone produce them. In addition to the doubts as to the result of the experiments by Mr. Knox being perfectly conclusive, it appears a little singular that, supposing the feathers worn away as imagined, at no after period of the bird's life do they show any signs of reproduction, which I conceive they would do if actually destroyed by hard work. Nature will ever make an effort to restore any part of animal organization that may

be disarranged by such means, to its original state, and we should, at all events, occasionally see some young stumpy feathers endeavouring to assert their privilege, for I deny that they labour so incessantly at all seasons, in working beneath the surface deep enough to prevent them, and even when extracting the newly-sown grain, at which times they perhaps work lower in the soil than at any other, the forehead is but seldom brought into very rough contact; the earth is first removed with the point of the bill, a hole made, and the grain afterwards taken out. The same plan of operation is pursued when working for larvæ and insects in the pastures; the roots of grass are torn up with the point of the bill, and the ground afterwards, if necessary, until the object of search becomes an easy prey. If the absence of these feathers was really caused by the assiduity of the rook's labouring and boring, it might be supposed to have a similar effect upon other birds, which at certain periods of the year are in the habit of inserting their bills into the ground equally as deep, yet we do not find one exhibiting the most remote tendency to put on such an appearance. It may, too, be fairly questioned, whether any labour of the bird's working in the ground, however protracted, or whatever the soil, would, even for the time being, wear the feathers away to the extent exhibited on the rook's head, and also impart to it that peculiar white scurfy appearance; and I maintain, that even were it so, the feathers would, at certain times of the year, be found endeavouring to resume their place; yet, all the old rooks that may be examined in summer, winter or harvest, will appear by their heads to have been perpetually digging with the same untiring perseverance, so similar is one to another in the extent, and even margin of the naked portion of the forehead and throat. With respect to the time of their first losing these feathers, I am inclined, from many observations, to think they are not, in healthy birds, renewed after the first autumnal moult; many may, certainly, be found in the winter months, having a portion or the whole of them left; these I take to be late hatched birds, which did not complete their moult in season, a common occurrence, and in various species the entire nestling plumage is occasionally retained through the winter. — *Christopher Parsons; North Shoebury Hall, Essex, February 25, 1845.*

Nudity of the Rook's Head and Forehead. Bewick, in treating upon the rook in his 'History of British Birds,' vol. i. p. 71, has remarked that he is inclined to consider the naked condition of the base of the bill and the anterior region of the head, in this species, as an original peculiarity, apparently intending to intimate thereby a belief that at no period of its existence are the parts in question covered with feathers, a construction of the passage which is countenanced by his having omitted to notice the fact, that young rooks, before their first moult, do not exhibit this deficiency of plumage. Now, as young rooks, when they quit the nest, have the base of the bill and the anterior part of the head amply provided with feathers, the question naturally arises, how is the nudity of these parts in old birds occasioned? On referring to my 'Researches in Zoology,' p. 174-175, it will be seen that, in the year 1834, I advocated the opinion prevalent among ornithologists, that the loss of the feathers alluded to above is attributable to the habit which the rook has of thrusting its bill into the ground in search of food. An extensive examination and comparison of specimens had led me to observe, that the nudity extends further, and is more complete in some individuals than in others; that the more prominent and exposed parts are first deprived of feathers, and that short filiform processes, bearing a close resemblance to new feathers enveloped in membrane, frequently occur on the less prominent and less exposed parts, particularly on the flaccid skin which occupies the angle at the base of the lower man-

dible. In addition to these facts I may remark, that an opportunity had presented itself of inspecting a rook whose mandibles were so greatly curved in opposite directions, and, consequently, so much crossed at the extremities, that it could not possibly thrust its bill into the ground, and the base of that organ and the anterior part of the head did not manifest the least deficiency of plumage. With such evidence in its favour, I was induced to adopt the popular hypothesis, which I now abandon, in consequence of having recently proved by experiment that it is erroneous. Being supplied by George Davies, Esq., with two young rooks, taken from a nest in his rookery at Cyffdu, on the 17th of May, 1843, I put them into a large wooden chicken-pen, purposing, when they could take their food without assistance, to remove one of them to a garden enclosed with walls, where it might have an opportunity of employing the means of procuring sustenance common to the species, and to let the other remain in the pen. This plan was frustrated by the unexpected death of one of the young birds soon after it came into my possession; but the result of the experiment, as will be seen in the sequel, was not at all affected by this untoward circumstance. In the month of August, the surviving rook lost only a few feathers from various parts of its body, but did not moult regularly till July and August, 1844, when the feathers at the base of the bill and on the anterior region of the head were cast off, and have not been renewed to the present hour, though the bird has always been remarkably healthy, and has never, on any occasion, been suffered to leave the pen for a moment. That rooks in a state of liberty usually moult in the autumn of the year in which they are disengaged from the egg may be inferred from the fact, that although numerous individuals, whose shrill voices evidently denote that they are young birds of the season, may be seen in the months of June and July with the base of the bill and anterior part of the head abundantly supplied with feathers, yet for several months prior to the breeding-season not one can be perceived, at least as far as my own observations extend, which has not those parts denuded. From what has been stated, it is evident that the phenomenon under consideration has a physiological, not a mechanical cause, though the removal of the plumage may be facilitated by the frequently repeated act of thrusting the bill into the ground; and the circumstances which seemed to support the opposite conclusion admit, for the most part, of an easy explanation upon this view of the subject. The difference observable in the extent and completeness of the nudity at the base of the bill and the anterior part of the head of the rook, probably depends upon the progress which has been made in moulting, especially among the younger birds; and the early denudation of the more prominent parts may be occasioned by the friction consequent upon the manner in which the bill is employed in procuring food. The short filiform processes so common on the depressed and less exposed parts present a difficulty of which no satisfactory solution suggests itself; but the state of the plumage on the head of that rook whose mandibles were greatly crossed, may be accounted for on the supposition that it was a young bird which had not moulted. Had the experiment recorded by Mr. Waterton, in his ‘*Essays on Natural History*,’ p. 136-139, been successful, this question, upon which public opinion has been so long divided, would have been settled some years earlier; unfortunately, however, both the young rooks selected for the purpose of deciding it met with untimely deaths, one before it had begun to moult, and the other soon after it had commenced moulting. On Mr. Waterton’s return from Bavaria, his gamekeeper, to whose care the latter bird had been consigned, informed him that at the period when its existence terminated, “the lower mandible had begun to put on a white scurfy appearance, while here and

there a few feathers had fallen from the upper one." It is to be regretted that the issue of this experiment was not more satisfactory, as from the nature of the case it was impossible to determine whether the feathers lost from the base of the bill would be renewed or not, though feathers shed from other parts in the act of moulting are known to be reproduced. The rook visits orchards and gardens when cherries and walnuts are ripe, for the purpose of feeding on those fruits; it also devours grain of various kinds, and frequently commits depredations in potato-grounds, by abstracting the newly-planted sets; but I entirely concur with those naturalists who maintain that the injuries it inflicts on the farmer and gardener are vastly more than compensated by the benefits it confers upon them by the destruction of noxious insects.—*John Blackwall, in Taylor's 'Annals' for March.*

Description of a supposed new Swift. In looking over some bird-skins in my collection procured in the summer of 1843, in Jamaica, I find a swift which I have not hitherto been able to make out, nor could I find any correct description of this bird in Jamaica. I have enclosed a short description of the bird for inquiry; if you think it worth inserting in 'The Zoologist.' The species is very common in Jamaica, and is probably equally so in South America. The head is brown; the back, wings, and tail darker brown; the rump white; the breast brownish-white; the lower parts dark-brown; the bill and feet black; the hind toe directed forwards. The length of the body is four inches; of the wings, four inches; of the tarsus, $\frac{3}{8}$ of an inch.—*H. J. J. Brydges; Athenæum Club, Pall Mall, March 20, 1845.*

Flight of the Swallow. In reference to what is remarked by Mr. Hussey in this month's number (Zool. 870), on swallows, viz., that when appearing on the coast of Sussex late in the season, their course is westward, I can state from recollection that the flight mentioned by me (Zool. 762), was proceeding in the same direction. I have a note made at this place on the 2nd of November last, that on the preceding day, about 8 A.M., a large flight, apparently of swallows and martins mixed, was observed moving from west to east. I did not see them myself, but the observer, on telling me of the circumstance, said that it struck him the more from his having remarked such flights generally taking a contrary direction at that season of the year.
Edward H. M. Sladen; March 18, 1845.

Nidification of the Swallows. Various are the situations selected by the swallows of this neighbourhood for the all-important purpose of nidification. In addition to the usual breeding-places, such as chimnies, out-houses, barns, archways, &c., &c., the old and disused coal-pits are frequently had recourse to. Those pits, so plentifully scattered over this district, after being exhausted of coal, or as the colliers term it, "brought out," are, for fear of accidents, generally fenced round with a wall of brick, six or eight feet in height, or in many instances a slight paling suffices; indeed, not a few are left without any protection whatever. To one of the latter description the following anecdote relates. Two collier's boys having noticed that an old pit at Dipton, in the county of Durham, was tenanted as a breeding-place by a colony of swallows, they at once proceeded to secure the eggs or young, the stronger of the two suspending his companion with his head down the pit, holding him by the feet. All went well, until having secured his booty, the under one expressed a wish to be drawn up, a request his "marrow" found his strength unequal to; alarmed and agitated, he screamed for assistance, and had an accidental passer by been a few seconds longer in arriving, one, or perhaps both, had paid with their lives the penalty of their rashness. An old thatched shed near the village of Long Benton has been annually resorted to

by a few pairs of swallows for many years, the nests being generally attached to the rafters. A brother of mine once found a nest and eggs in a hole some eight or ten inches deep, excavated in the thatch of this shed. There could be no doubt of this fact, as he captured the female on the nest, and I now have the eggs by me. In this instance there did not appear to have been any mud used in the construction of the nest; perhaps the swallows had found the excavation so suited to their purpose, that they had been tempted to relinquish their usual method of building.—*T. J. Bold*; 24, *Cloth Market, Newcastle-on-Tyne, March 22, 1845.*

Anecdote of the Pied Flycatcher. For a long series of years, a pair of pied flycatchers had incubated their eggs, and nurtured their young in security, in a small aperture close by the portico to the principal entrance of my father's residence, Hendre House, Deubighshire, undisturbed, apparently, by the frequent passing and repassing of its inmates. The lively effect of the well-defined and strongly-contrasted black and white plumage of the male, his short but pleasant song, and the confiding habits of both sexes, rendered them objects of great interest to all the members of the family, who did not allow them to be molested on any pretext whatever. Unfortunately, on the 18th June, 1843, a swarm of bees discovered the aperture, which then contained a brood of nestlings nearly fledged, and by hurrying in and out of it, and flying about the entrance in large numbers, seemed determined to dispossess the rightful owners. Whenever the parent birds attempted to approach the spot for the purpose of feeding their young, they were instantly attacked and repelled by the excited bees, from which they took refuge among the branches of an oak growing near, and there manifested their anxiety by notes and actions, expressive of extreme uneasiness. After having been severely stung, the nestlings fluttered to the mouth of the aperture, and descended to the ground, where they all perished, their bodies being much swollen. Towards the close of April, 1844, the same pair of birds returned to their favourite breeding haunt, and repeatedly visited the aperture so long occupied by their nest; but being again assailed by the bees, which had removed to a parallel aperture on the other side of the portico, it is probable that the incident recalled the destruction of their progeny in the preceding year, for they eventually deserted the place, and selected a hole in a low stone wall, by the side of the avenue leading to the house, in which they constructed a nest, and brought up their young. This instance—and other cases might be adduced—evidently tends to show that the pied flycatcher resorts annually to the same locality for the purpose of continuing its species, and that, like its congener the spotted flycatcher, it is a very familiar bird during the breeding season.—*John Blackwall, in Taylor's 'Annals' for March, 1845.*

Habits of the White Wagtail (Motacilla alba, Lin.) Having read with much interest the notes published in 'The Zoologist' (Zool. 137, 232, and 358), relating to the grey wagtail (*Motacilla Boarula*), and its curious propensity of flying against glass window-panes, I send you the result of my own observations on this subject. In the beginning of October, 1843, being one day in the garret, my attention was attracted by what seemed repeated knockings against a window at the opposite extremity; wishing to ascertain from whence it proceeded, I advanced very cautiously towards the spot, and to my no small surprise perceived it was caused by a white wagtail, which at intervals of a few minutes flew with considerable violence against the pane. In order to watch the bird's proceeding without frightening it, I descended into the garden below. It was then settled on the projecting edge of an outhouse, situated a few feet from the window; after walking, wagging, and chirping for the space of a minute or

so, it flew against the pane, presenting its legs and breast foremost; after this it immediately returned to its former stand; from thence it ran directly into the gutter, calling its mate, which was on the top of the roof. All of a sudden it stopped, and turning round, went off to the window, against which it dashed, as it had done before, and then took its former station in the water-pipe, which was very muddy. The bird continued these manœuvres till, being tired of watching its motions, I left it to itself. Next morning, being curious to learn whether the wagtail was repeating its former evolutions, I went up, and, as I half expected, instantly heard the beating on the window: on nearing the spot, I saw that, from flying from the dirty gutter to the glass pane, the bird had so besmeared it with loam, as to render it utterly impossible to discover anything through it. I opened the window, on which the wagtail immediately took to its wings, and alighted on the grass plot before the house; I had, however not closed it five minutes, before my *Motacilla* returned to its habitual occupation. Every morning for about a month were these proceedings continued, when the bird disappeared, and has since no more been seen. The motives as yet hinted at as solutions to this problem, are not satisfactory, as, in this case, the bird had a mate, and had so dirtied the pane, that it would have been impossible for it to discern anything in the shape of an insect through it. Besides, I think that any bird (except for amusement's sake, as parrots swing themselves) in pursuit of either of these objects, would hurt or disable itself in such a way as not to be willing to recommence the trial, at the risk of dashing itself to death against a hard surface.—*J. Deby; Lacken, February 3, 1845.*

Nest of the Grasshopper Warbler. Having, in 1835, and twice since, found the nest of the grasshopper warbler, I am enabled to give the following particulars of the nidification and habits of that skulking bird. The first nest was about the middle of a small plantation of four or five years' growth. Out of a tuft of grass, overarched by a bramble, and containing a small plant of whitethorn, I observed something hop, as it were, and immediately drop into the herbage. I examined the tuft, in hopes of finding a nest of something or other; but a careful search resulted in nothing but disappointment. In the course of the day I returned to the spot—there was the same hop and away—but the motion was so short and quick, that I could not even then distinguish whether I had seen a bird or a mouse. I repeated my search for a nest, but with no better success than before. I then sat down by the spot to watch if anything would approach, and it was not long before I observed the grass move, and a veritable *Sylvia locustella* (threading its way through the grass) approached within arm's length of me; but after eyeing me for a moment, it commenced a retreat. Feeling confident there must be a nest, I took my knife, and carefully cut away the herbage near the tuft, and then proceeded with the tuft itself; in the very centre of which, and in a depression of the ground, I found the object of my search; but to the very last there was not the slightest appearance of ingress or egress. I was so struck with what I had witnessed, that I again sat down, and ever and anon the same stealthy movements to and fro were repeated. The male bird appeared very shy, and only once approached, and then not nearer than eight or ten yards: it perched on a twig just above the ground, and for a while kept up a harsh grating noise, but soon disappeared, and I saw it no more. The female uttered no cry. The other two nests I detected in the same manner, in small open places in an extensive wood: their situations were exactly alike, being in the centres of two very large tufts of coarse grass, at a depth of fourteen or fifteen inches (about the same depth as the first nest)

from the top. These tufts were free from thorns or brambles, and being much larger than the first, afforded sufficient concealment, without the nest resting on the ground. There was the same absence of all appearance which could lead you to suppose they contained a nest. In both cases I watched the movements of the female, and they were precisely the same as I have already described; she never rose on the wing; and it would seem probable (if not disturbed) she never flies either to or from her nest; but threads her way through the herbage, and thus effectually prevents everything that could lead to the discovery of her retreat. The whole proceeding most forcibly reminded me of a mouse under similar circumstances. The eggs were six in number. The nests, in the two latter instances, were entirely of dry grass, finer internally, in the first there was a little moss outside, owing, probably, to a trifling difference of situation.—*William Turner; Uppingham, March 10, 1845.*

Where should Atricha clamosa be placed in the system? Will you be good enough to tell me whereabouts in the system occurs the New Australian warbler, named by Mr. Gould Atricha clamosa, and noticed in 'The Zoologist' for 1844 (Zool. 496). Perhaps you will kindly inform me next what genus it should be placed in Mr. Gray's 'List of the Genera of Birds.'—Edward H. M. Staden; Warneford, Hants, March 12, 1845.

[I cannot solve this query: perhaps some of my able correspondents will favour me with their assistance.—*Edward Newman*]

Occurrence of the Fire-crested Regulus in Cornwall. I am glad to have it in my power to record in 'The Zoologist' the capture of another very rare British bird. During the hard frost on Thursday, the 6th March, Mr. H. Vingoe, naturalist of this place, remarked within a couple of gun-shots from this town, several cliff-chaffs busying about for insects (a very unusually early period, by the bye, for these birds to appear in large numbers, and especially in weather so uncongenial to their character). Amongst these birds he observed one which, from the sulphur-green of its upper plumage, he was induced to shoot. This proved to be no less than a female fire-crested Regulus (*R. ignicapillus*). The three bands above, through and under the eye, are sufficiently plain to be remarkable, without being very distinct. The white above the eye, and the yellow-green on the back, and especially on the shoulders, are very well shown. I will notice here a remark quoted by Mr. Yarrell from Sir W. Jardine, as to the colour of the crown of the female of this species being *similar* to that of the male, which is bright orange colour, differing in this respect from its congener, the common species, which in the female has the crown lemon yellow; in my specimen, now under notice, the crown of the head is *bright lemon yellow*, differing *in no respect in tone of colour* from that in the female golden-crested Regulus, except, perhaps, in intensity. Mr. Jenyns refers to the *young of the year* of this species having a lemon-coloured crest, but *being without the three bands*. As my example differs from both of these characters set forth by the high authorities I have mentioned, I think it worth while to refer particularly to my own, in order that those who have had opportunities of seeing the bird more frequently than myself in the skin and flesh, may give their opinion.—*E. H. Rodd; Penzance, March 8, 1845.*

Occurrence of Bewick's Swan near Somersham and Godmanchester. On Monday last there were no less than six specimens of the *Cygnus Bewickii*, in the market of this town. Three had been killed on Somersham fen, the other three near Godmanchester. Three of them came more immediately under my own observation, having been all preserved in my rooms here, either for myself or my friends. Of these the

largest, an old male, weighed only ten pounds, which is considerably less than the hoop. Its trachea was in what Mr. Yarrell calls the second stage, when the convolution at the end of the sternum is on one side. The second, a female, had what, according to the above-named gentleman, is the most perfect form of the trachea, *videlicet* the loop being equal on both sides; but I am inclined to think that the former was the elder bird, for the following reasons. First, that the breast-bone of the male is much more discoloured than that of the female, though the latter is far from white. Secondly, that the trachea of the former fills up the cavity of the sternum much more perfectly than that of the latter, so closely, indeed, as to render it extremely difficult to avoid rupturing it, when laying open the cavity. The third was a young bird, the sex I did not ascertain; it was in pure white plumage, but the loop of the trachea was not more than an inch and a half from the anterior edge of the sternum. These birds were all in very perfect plumage. The others have, I believe, been purchased for the Museum of the Cambridge Philosophical Society. The three that I prepared were those killed at Somersham.—*H. T. Frere; Cambridge, March 17, 1845*

Enquiry respecting a species of Duck. A subscriber to 'The Zoologist,' who is much interested, but not deeply versed in the history of birds, cannot satisfy himself from any books in his possession, respecting a species of duck, which is sold in the menageries in London, under the name of the call, or decoy duck. He lately saw a number of these birds at Mr. Baker's, Beaufort-street, King's-road, which varied in colour, and were as domestic as the common farm-yard duck, but not more than half the size. He has a pair of them in his possession, which are even more tame and familiar than the common ducks bred in his yard, and much more interesting in manner. They associate with them, but the drake pays attention only to his own mate. If he can be informed, through the medium of 'The Zoologist,' or the kindness of its Editor, of the proper name and the history of the species, he will be much obliged.—*Rev. J. Hewgill; Wollerton, near Nottingham, Feb. 12, 1845.*

Carnivorous propensity of the Helicidæ. One or two examples having been adduced in your pages (Zool. 201, 396), of the carnivorous propensity of snails, it may be satisfactory to the gentlemen who brought them forward to find their observations borne out by an instance so remarkable as the following. Happening in January last to be on the Sussex coast, I captured several species of the genus *Helix*, adhering to the underside of a log of wood, on the beach at Bulverhithe, near Hastings. Having nothing in my pocket at the time but an entomological bottle, containing, at least, three dozen specimens of *Coleoptera*, collected the previous day from the moss, I put them in with the rest, and thought no more about it. On arriving at Cambridge, a fortnight afterwards, I was surprised to find the snails perfectly lively, but of the *Coleoptera* not so much as a vestige remaining, save one solitary (and dead) specimen of *Ptomophagus velox*, which I captured in the same locality as the snails. I believe it is a well known fact, that, although *vegetables* are the legitimate food of the *Helicidæ*, the habits of some of them (as is the case with most of the inoperculated species of Gray's order "*Pneumonibranchiata*") are occasionally carnivorous, so that, were all vegetables removed from their reach, it could be no matter of surprise to find that, as a last resource, they should seize upon whatever came first to hand. But with the specimens in question,

this was *not* the case: I placed in the bottle an abundant supply of the freshest grass and other plants which grew close to the spot where they occurred, so that it was no matter of compulsion on their part, but pure and decisive *choice*. Not having watched their progress, it is certainly possible that the Coleoptera may, in the first instance, have urged civil war amongst themselves, and have thus lessened their numbers before the snails joined in the fray. Indeed, it is highly probable that such was the case, but still the solution is a difficult one, without assuming that the snails had, at all events, a *large share* of the booty. For, regarding the small remaining specimen of *Ptomophagus velox*, surely no one will suppose him guilty of a deed so atrocious, that, after having murdered three dozen of his brethren, for the most part stronger and bigger than himself, he should actually sit down in cold blood, and feast upon their mangled carcasses until all were consumed! The number of specimens captured were four of the common *Helix cantiana*, five of *hispida*, and one of *virgata*. Of the Coleoptera there were certainly not less than three dozen, including specimens of *Dromius agilis* and *4-maculatus*, *Helops striatus*, *Haltica 4-guttata*, *Apion Sorbi*, *Phædon Vitellinæ*, &c., besides several species of *Brachelytra*, not a fragment of which (with the exception of the above-named specimen of *Ptomophagus velox*) now remains. I have carefully examined the bottle, and, although I have twice emptied the contents on a white sheet of paper, and searched with the greatest care, I cannot discover the smallest trace of the former inmates, which can be accounted for only on the hypothesis that the snails took an abundant part in the fray; for, even supposing that they did not *commence* the fight, events certainly prove that they had the *best share* of the booty.—*T. Vernon Wollaston; Jesus College, Cambridge, March 6, 1845.*

Occurrence of Papilio Machaon in Derbyshire. As I find the capture of two specimens of the swallow-tail butterfly (*Papilio Machaon*), at Matlock, in Derbyshire, recorded in a former number of 'The Zoologist' (Zool. 400), I feel myself bound to explain how this must have happened; the passage was pointed out to me only a few days ago, or I should certainly have sent this explanation sooner. In the springs of 1843 and 1844, I procured a very large number (many hundreds) of the chrysalids of *P. Machaon* from Burwell Fen, and as the butterflies came out, by far the greater number of them were permitted to escape, partly for the pleasure of seeing them in the state of liberty, and partly in the hope that they might breed and continue to flourish in the neighbourhood; at the same time, by so doing, they would disprove the common notion that local insects cannot be permanently transplanted. Most of those so turned out were at Matlock, but many were also liberated at Beeston, in Nottinghamshire, and some few dozens at Eton, in Buckinghamshire. I had the best prospect of success at Matlock, as there is not much mowing grass, whilst various umbelliferous plants abound on the rough grounds, and although the features of the country are the extreme opposite to those of Cambridgeshire, I was not without hopes, for I had heard that on the continent *P. Machaon* is found on hills: however, although some of the caterpillars were found in the neighbouring gardens, there does not seem much probability of ultimate success, for, even in Cambridgeshire, they are confined to the fens, and abound only where there is sedge. I am inclined to think that sparrows and other birds would alone effectually stop their increase. I am aware that many naturalists will be much

annoyed at my proceedings, and I am not at all prepared to defend myself, but in this case I in some degree avert the mischief by public avowal. If the practice of introducing insects, or plants (for my observations apply to them with even more force), were to become general, lists of local faunas would soon be of doubtful authority, and the highly interesting subject of the geographical range of insects and plants would be involved in error; still worse would be the loss of interest in our individual captures, which would be another certain result, and it would perhaps be as baneful to the health of the entomological world as the practice of buying specimens for our cabinets has already proved to be. For, even if dealers were universally honest, and none of them practised gross and mischievous deceptions, numbers of people must have been disgusted with Entomology, on seeing that the comparative excellence of their cabinets must depend so immediately on the length of their purses, rather than on their own industry and ingenuity: a rich man has an undue advantage, if advantage it be, but it seems much the same as if a squire were to *buy* the trophies of the chase that adorn his hall. I have inserted the English name of *Papilio Machaon*, a practice which, where it is possible, should be more generally adopted in 'The Zoologist,' as it is a great kindness to ladies, and other *unscientific* people.—*T. Wolley; Trinity College, Cambridge, March 18, 1845.*

Occurrence of Vanessa Antiopa in Somersetshire. While entomologizing in Goblin Combe, a romantic glen near Cleeve, in Somersetshire, in August last, a fine specimen of this beautiful insect settled on the rock before me, and ere I could secure it, it took flight, and descended a lofty precipice; in a few minutes it reappeared almost in the original spot, but again took flight down the precipice, and finally eluded my grasp, to my great mortification.—*J. F. Stephens; Eltham Cottage, Foxley-road, Brixton, March, 1845.*

Capture of Argynnis Lathonia and Vanessa Antiopa in Kent. Mr. Thomas Price, formerly of Shoreham, in Kent, and now of London, informs me he captured twelve specimens of *Argynnis Lathonia* in woods in the parish of Shoreham, in or about the year 1839; he describes these beautiful butterflies as frequenting the blossoms of thistles in open parts of the woods: three of these specimens having been presented to Mr. Ingall, are now in that gentleman's cabinet. Mr. Price also captured a single specimen of *Vanessa Antiopa* in the same locality.—*Edward Newman; 9, Devonshire-street, Bishopsgate, April 2, 1845.*

Occurrence of Lytæa leucographa near York. During the early part of April last, I took off a sallow (near York), when in blossom, a male specimen of a *Noctua* that was new to me. In corresponding with Mr. S. Stevens, a short time ago, he informs me that it is the *Lytea "leucographa"* of Hubner, and that some five or six were taken at Leith Hill, in Surrey, last spring, three of which have come into his possession. I have in my collection a specimen in fine condition, which I took at Langwith, a locality near York, in 1834, which is well figured in 'Wood's Index' as *Lytea "leucographa,"* by which name my specimen is recorded in 'The Entomologist.' Mr. S. Stevens also tells me, that the specimen from which Wood's figure is taken is now considered to be but a variety of *Lytea "albimacula."* Should you consider the above capture of mine (of a species which I believe to be of rare occurrence), worthy of being recorded in your valuable periodical, I shall feel greatly obliged by its insertion.—*Robert Cook; Colliergate, York, March 25, 1845.*

Capture of Moths with Sugar, &c. I have tried Mr. Douglas's receipt for preparing sugar for moths with some success. I find that of coarse brown quality, when

boiled and mixed with a little rum, to be the best method of preparing the most attractive lure: I have also tried honey with indifferent success. Mr. Gregson (Zool. 800), appears to have been fortunate in using a mixture of honey and sugar; and surely this fact ought to stimulate entomologists to prepare other compounds of sweets, to tempt the fastidious tastes of the objects of their pursuit. I intend doing so during the coming season, and will communicate the results to 'The Zoologist;' but from the coldness of the climate, I cannot expect to meet with any success till June; but in the interim, perhaps, some southern naturalist will favour his fellow-labourers with the result of his experiments. I find that the honeysuckle is the favourite flower with most of the moths which haunt our garden; next to this comes the French marigold in September: and from *Silene inflata*, I have captured more specimens than from all our wayside flowers together: and I again repeat (Zool. 482), that I should feel greatly obliged to any one who would publish a list of such flowers and shrubs as are chiefly frequented by moths in England. I have not only applied prepared sugar to the bark of trees and bushes, but also to their leaves and flowers, and the flowers of several annual and perennial plants; and with the solitary exception of one tree, I had very little success, and the fickle disposition of the moths puzzled me much; thus I only captured two specimens during the whole season, from off a birch tree growing near to a rude arbour, overgrown with honeysuckle, whose flowers were a source of great attraction, and I could not discover these insects manifested any marked partiality for those corollas which contained a drop of sugar, over those secreting their native nectar. From the trunk of a poplar growing in a corner of the garden, and within a few feet of a hedgerow which stretched away some four hundred yards in one direction, and whose ditch banks were a chosen resort of many species, I captured a number of moths which were sufficient to remunerate me for all my time and trouble, and many of them were strangers to me, but for want of illustrated works, and of access to a labelled collection, I cannot furnish you with a catalogue of their names. I attended to Mr. Douglas's directions in the main, but having no lantern, I knelt down, and thus I was enabled to see every specimen as it appeared about the tree. I noted how they came trooping along the hedgerow, how some descended at once upon the tree, how others described many gyrations previous to alighting, and how some flew past without searching after the source of the nectariferous scent which filled the air in that quiet corner. Some nights they abounded, and then I found that they were shy and wary, and again they would feed greedily, and return promptly, even though repeatedly struck at with the net whilst on the wing; one evening in particular, two or three individuals alighted on my soiled hands, and on the neck of the bottle, as I was applying the mixture with a brush: on some occasions not a single moth appeared; the laws which seem to regulate their appearance are most mysterious. In conclusion, I beg to state, that by confining my captures of the larger species in pill boxes, after returning to the house, I raised the lid, so as to obtain a view of the insect, and if I found that I already possessed a sufficiency of the species, I restored the insect to life and liberty.—*Archibald Hepburn; January 29, 1845.*

Pyrallis manualis of Zool. 763. I am sorry to inform you that the supposed *Pyrallis manualis* mentioned at the page above referred to, turns out to be an American insect, but I have no doubt the person who gave it me believed it to be British. I shall feel obliged by your correcting this mistake.—*Thomas H. Allis; York, 16th February, 1845.*

The identity of two obscure (and little known) British Moths with the Geometru

gemmata of Hübner. In Haworth's 'Lepidoptera Britannica,' p. 340, appears a description of an insect by the name of *Phalæna angustata*, thus characterized, but in Latin, "wings grey-brown, with an oblique narrow brown bar in the middle, in which is an ocellated black dot, with a white pupil:" and in p. 344 is the description of a second species, called *Ph. albicinctata*, the characters of which are, "wings black, each with a white dot in the middle, and a white streak near the hinder margin." This last insect, to use the term of its late lamented describer, has always been a "puzzle-peg;" it was formerly in the collection of the late Mr. Naclett, and is now in that of my friend Mr. Ingall, with the remainder of Mr. Naclett's collection. I have thus had an opportunity of examining it recently (not having seen it previously for nearly twenty years), and it proves to be a male insect, in not very fine condition, with slightly pectinated (broken) antennæ, and I am satisfied that it is decidedly the male of *Ph. angustata*, of which only females are known to me; and which insect is as unquestionably the *Geometra gemmata* of Hübner (*Geo. pl. 55, f. 283*), which name must be adopted. From the structure of the male antennæ and the general habit of the insect, together with an examination of the female (Haworth's original specimen of which I possess), the species is referrible to the same genus (*Cidaria*) as *Ph. ferrugaria*, &c., next to which species it may be located, as in Hübner's plate. Mr. Naclett's specimen was taken at Peckham, nearly fifty years since, and about two years ago, one, I understand, was taken at Camberwell: mine was found at Margate, and a fourth occurred some years since at Camden Town, in September.—*J. F. Stephens; Eltham Cottage, Foxley-road, Brixton, March, 1845.*

Some account of Cleodora vibicipenella, a minute British Moth. I beg to hand you a few observations on the economy of that singular insect, the *Cleodora vibicipenella*, believing that if you consider them worthy of insertion, they will prove interesting to many of your readers. I found the larvæ of this insect in Trench Wood, Worcestershire, the first week in June, 1844; they were on the twigs of the common dyer's green-weed (*Genista tinctoria*), and each was enclosed in a case which stood nearly erect: in this position they closely resemble the black ripe pods of some papilionaceous plants, and are not unlike those of the *Genista* on which they are found. In the evening the caterpillars relaxed their hold, allowing the shell or case to fall loosely down, and then thrusting forth their head and the six thoracical feet, they crawled about the plant in search of its leaves, on which they feed; they probably continue rambling about and feeding all the night, but this I did not positively ascertain. I always found them erect and attached at five in the afternoon, and again as early as eight in the morning. Many of those in my box wandered in the evening, or during the night, from the twigs of the plants which I gathered, while they were still attached, and fixed themselves to the lid and sides of the box in their favourite erect position. It must be obvious that during the time the larva requires food, its head is towards the open or lower end of the cylindrical case in which it feeds, but no sooner is it full fed, than it glues the open end of the case to the twigs, or some other hard substance, and then turns completely round, and changes to a chrysalis, so that when the moth is ready to come forth, it emerges through the upper end of the case, the lower end still retaining its attachment to the twig. I am quite at a loss to imagine how this turning in the case is accomplished, but that it really takes place is beyond all question. I send you a specimen in which the moth has been killed while making its escape. As I started for Scotland soon after finding these insects, I took them with me, in order to observe their transformations. The moths made their appearance duly the

first week in July. Like most of our Lepidopterous insects, the caterpillar of this little moth is the prey of an Ichneumon, the female of which is apterous, but the male winged; I send you a specimen of the latter sex: when the Ichneumon is ready to emerge, it makes a hole at the base of the case, through which it effects its escape.—*Richard Weaver; 63, Pershore-street,, Birmingham.*

[I have ventured on adding the name of the plant to which the specimens are still attached, and also on making a few alterations in this most interesting communication. *Edward Newman.*]

Singular fact related of the House Fly. I hope the following will be worthy of a place in 'The Zoologist.' A few summers ago, while idly looking out of a window, my eye was caught by a small drop of a viscous but pellucid fluid on the trunk or proboscis of a common fly, which was resting on the window pane. On watching him more closely, I found that the drop gradually but steadily increased in size, till it grew (I speak from recollection), considerably larger than the fly's head. So it continued for some sixty or seventy seconds, after which it again gradually diminished, till the whole was absorbed. All this time he continued perfectly tranquil, and apparently in a state of great enjoyment, without any of the toilette operations of brushing and cleaning the legs, which take up so much of a fly's leisure. I have been fortunate enough to witness the whole process of the formation and subsequent absorption of the drop two or three times, and, I need not say, have speculated on it not a little. Sometimes I have thought that, as this insect lives principally by suction, the contents of its stomach must be fluid, and that the operation I have described was a bringing up again of its liquid food, analogous to "chewing the cud" among quadrupeds. If, however, this is the true solution, and flies are really in the habit of eating the same meal twice, it appears unaccountable to me that the fact should not have fallen under the notice of naturalists long before this, unless, as I have sometimes suspected, it only takes place when flies are *unwell*, and so may be considered a kind of sickness or vomiting. Sometimes, again, it has occurred to me, that what looked so much *like* a drop of fluid, might not really *be* one after all, but was possibly a bubble or inflated film of fluid, which the fly might be supposed capable of producing. This, I am inclined to think, would have a very similar appearance to that described, at least to the eye of a not very accurate observer. I should be very glad if this slight notice of a fact which appears to have been hitherto unrecorded, if not unnoticed, should lead some of the readers of 'The Zoologist' to study more closely the habits of the fly. Should it do so, I hope I may be allowed to point out one or two things to which they would do well specially to direct their attention. First, the manner in which the light is reflected by the drop; next, the apparent health of the fly at the time; thirdly, the frequency and times of recurrence of the phenomenon in the same insect, if possible. It would be desirable, too, to obtain and analyse the fluid (if it be one), and to mark the effect its abstraction has upon the fly. The great difficulty, however, would be to catch the fly in the act; and for this purpose it appears to me that a sort of muscarium or fly-hive would be a valuable help. I feel in some perplexity as to what would be the best method of constructing such a thing, and should feel obliged by hints or advice on the subject, in the pages of this Magazine. It ought to be so arranged as to admit, at least in part, of the principle of solitary confinement being adopted, and the different prisoners ought to be differently dicated, by which means I think we might learn many little instructive particulars about a fly's "private life," in addition

to the fact which we were seeking to establish.—*W. S. Lewis* ; 44, *St. Michael's Hill, Bristol, March, 1845.*

Note on Mr. Smith's papers on British Bees. Several excellent papers have also been published in 'The Zoologist,' by our Curator, Mr. Smith. These comprise descriptions of new species, with a complete revision of the families of British Humble Bees (*Bombus*); the Wasp Bees (*Nomada*); the Leaf-cutter Bees (*Megachile*); and the Mason Bees (*Osmia*). It is much to be regretted that Mr. Smith should have preferred to publish these little monographs on the Bees scattered through a periodical journal, instead of allowing them to grace our own Transactions, &c.—*Mr. Newport's Address to the Entomological Society of London, 1845.*

[On what principle is it to be regretted that these excellent papers are made public property, instead of being restricted to the few wealthy individuals who purchase the Transactions in question? Why lock up knowledge from any one who seeks it?—*Edward Newman.*]

Economy of the Stylopites, minute Parasites on Bees. The species on which Dr. Siebold has made his observations, are *Stylops Melittæ*, and *Xenos Rossii* and *Sphecidarum*. The diminutive parasitic Strepsiptera, the giant of which scarcely exceeds one-fourth of an inch in length, are of especial interest to the Society. Discovered and first described by our venerable friend Mr. Kirby, we have adopted the *Stylops* as our emblem; any elucidation of its heretofore obscure Natural History must therefore be of particular interest to us. This has been supplied by Dr. Siebold, who now shows that the Strepsiptera undergo a singular metamorphosis; that the males and females differ from each other; the metamorphosis of the males being complete, they alone being furnished with wings; the females, on the contrary, have neither legs, wings, nor eyes, and greatly resemble larvæ. These females are viviparous, and never quit the bodies of the Hymenoptera in which they live as parasites. The young Strepsiptera, at the moment that they burst the eggs in which they are developed, within the body of the parent, have six legs, and are furnished with organs of manducation; these are the diminutive objects described in Mr. Westwood's paper, in a former volume of our Transactions, as the parasites of *Stylops*; and as such they were regarded at first by Klug, and also by Dr. Siebold. These little hexapodous larvæ infest the surface of the abdomen of bees, within which their parent-mothers live and die. In this way the young *Stylops* is carried into the nests of the Hymenoptera, and escaping on the bodies of the larvæ, penetrate their soft skins, and become parasites on them as their parents have been in the bodies of the female bees. These larvæ shed their skins, become apodal, and move very slowly. They have then a distinct mouth and jaws, and a simple cœcal intestine, but no anal aperture. The body is formed of nine segments, of which the first is the largest, and may be considered as a cephalothorax. In this state the males are easily distinguished from the females. The cephalothorax of the male larva is conical and arched, and the last segment of the body is straight and pointed. In the females the cephalothorax is truncated or rounded in front, and flattened, or scale-like, in the rest of its extent, and the terminal segment of the body is large and rounded.—*Id.*

[I have not seen Dr. Siebold's paper, but from Mr. Newport's abstract, some points do not appear satisfactory; for instance, that the larvæ become apodal after possessing legs. The communication, however, is one of great interest, and I hope my correspondent, Mr. Smith, will not allow the subject to drop: he is peculiarly qualified for the investigation of this hitherto obscure history.—*Edward Newman.*]

Glow-worm in Scotland. Mr. Duncan (Zool. 612) gives some localities of the glow-worm in Scotland, which are not mentioned in 'Coleoptera Edinensis,' page 202; the authors of which state, that it is now (1834) a very rare insect in the neighbourhood of our metropolis; and the only other habitats which they enumerate are situated in the county of Mid Lothian. Three years ago I tried to introduce this "earth-born star" into our borders, and with that view I obtained five or six females from Thornbury, Gloucestershire, in the month of September, which were turned adrift on a mossy bank in the garden, but I have ever watched in vain for their beautiful light, which is only known to me from the descriptions of authors, and the smooth flowing verses of Wordsworth. Perhaps you could inform me of the probable cause of the failure of this experiment. When does the glow-worm cease to give her light? When does she deposit her eggs? I did not expect that my specimens would survive the winter, but was in hopes that their progeny would. Was the mossy bank unsuitable for their residence? I ask these questions, because I purpose renewing the experiment next summer, for I think their light would have a fine effect on our braes and hill-sides.—*Archibald Hepburn; Jan. 29, 1845.*

Destructive power of the Coccus, or Scale Insect of the Orange. This little pest had been regarded as the *Coccus hesperidum*, but our friend Mr. Spence recognized it at once as the mussel-shell *Coccus*, described by Geoffroy. On this single fact of recognition, the result of extensive experiments, and a vast outlay of capital might have depended. So complete have been the ravages of this insect, that one of the Azores, the island of Fayal, lost its entire produce from this cause alone. The usual exportation of fruit from Fayal has been 12,000 chests annually, but in 1843, not a single chest was exported. This injury has already extended to St. Michael's, and is still continuing; and the inhabitants of the whole of that group of volcanic islands, depending almost entirely on the produce of their orange-groves, and despairing of retrieving their prospects, are fast turning their attention to the cultivation of other objects of commerce. This amount of injury to a whole population, by a diminutive and apparently contemptible insect has been the result of but three years. The effects of this insect on a single article of luxury may fairly be adduced to show that entomological inquiries are deserving of full attention. The orange trade between this country and the Azores gives employment to upwards of two hundred sail of vessels; and, as I am credibly informed, the orange trade alone returns to the revenue of this country an import duty of more than £50,000 per year. M'Culloch, in his 'Dictionary of Commerce' (1844), has shown that the amount of duty paid by the orange and lemon trade, on an average of three years, ending with and including the year 1842, was £70,833 per year. The number of boxes of fruit imported for home consumption, on which this duty was levied, amounted to 334,070, and the estimated number of fruit at 217,172,363! The support of the numerous families, the fortunes of the merchants engaged in this commerce, and even the revenue of this country, and the wealth, ay, and even the very existence of a whole population, are thus directly affected by the operation of a diminutive insect.—*Mr. Newport's Address to the Entomological Society, 1845.*

Occurrence of a Dragon Fly six hundred miles at sea. Mr. Saunders exhibited, at our December meeting, a specimen of *Æshna*, that was taken at sea by our corresponding member, Mr. Stephenson, in his voyage from this country to New Zealand, last year. This insect is a recognized African species, and was captured on the Atlantic, more than six hundred miles in a direct line from land. In all probability it had

been driven across the ocean by the trade winds, which blow continuously at that season of the year, in a direction oblique to the course of the ship that was conveying Mr. Stephenson outwards. The other instance that has just come to my knowledge is mentioned in a letter from Mr. Dyson to Mr. Cuming. Mr. Dyson states, that while at sea, in October last, when about six hundred miles from Cape de Verde Islands, and twelve hundred from Guadaloupe, he observed a large butterfly, apparently of the genus *Morpho* (?), flying round the ship, but he could not succeed in capturing it. These are facts related by entomologists who could not have mistaken the objects observed, and consequently they are entitled to full credit. They are full of interest in relation to a subject of physiological discussion, the power of flight supposed to be possessed by these, our little favourites, and the speed with which they are conveyed across the ocean, whether by an actual expenditure of muscular energy, or whether carried by the force of the wind alone. My own opinion certainly is, that the amount of muscular power exerted during flight is trifling, compared with what we have usually supposed it to be, and that in these instances the insects have been greatly aided in their progress by the wind. The speed at which they must have traversed the ocean seems to confirm this view, as it is well known that the *Æshna* will not live more than a few days, if unable to obtain its living food.—*Id.*

Report of the Microscopical Society of London.

March 19, 1845.—Professor Bell, F.R.S., &c., President, in the Chair.

A paper by Alfred Smeë, Esq., F.R.S., "On Vessels in Fat smaller than the Capillaries," was read. This paper was a continuation of a former one (*Zool.* 808). Mr. Smeë commenced by stating that, although it was extremely difficult to ascertain precisely the original size of the capillaries, he was about to describe in the present paper another system of vessels, so much smaller, that it is impossible to attribute their diminutive size to any shrinking of those vessels. They are given off from them, and are distributed at every angle of each cell of fat. To these vessels he proposes to give the name of *Vasa Adipis*, as clearly pointing them out as appendages to fat, and also as preventing their being mistaken for the *Vasa serosa* of some anatomists, the existence of which is, however, in his opinion, very problematical. The vessels now described are very minute, measuring from about $\frac{1}{10000}$ to $\frac{1}{25000}$ of an inch in diameter. They are found in every kind of fat when in its highest state of development, but do not appear until then, existing only in fat, the globules of which have assumed their polygonal form, so that it should appear that the last process for the development of fat in its perfect state, is the production of these minute appendages to the capillary system. It must, however, be borne in mind, that although the term vessel has been applied to them, no evidence whatever can be adduced, either of the existence of a cavity, or of distinct walls. The term *Vasa* is here applied to denote that a certain part exists in a definite position, with certain boundaries, and possessing generally tolerably regular dimensions, which is also permeable by fluid injections. It should also appear that their formation depends upon the two sides of contiguous vesicles, leaving at their angles a little space, which becomes converted into one of these minute vessels. Nothing has been ascertained with respect to their office.

Another paper, by Edwin Lankester, M.D., F.L.S., B.S.E., &c., "On some Abnormal forms of Fungi, with Remarks on their Morphology," was read. The Fungus

which led to these remarks, was found by Dr. Lankester in the neighbourhood of Cheshunt, in December, 1844. It was a specimen of the *Agaricus personatus*, which was in a decaying state, from the effects of a previous frost. It exhibited in all its parts a normal structure, with the exception of the pileus, in the centre of which, immediately over the insertion of the stipes into the hymenium, a second and smaller hymenium was developed. The gills of this were apparent and presented towards the light, and its edges were covered with a pileus, which gradually united itself with that of the lower hymenium. There was, however, no appearance of any development of a stipes. On making a section of the whole plant, no connexion between the lower and upper hymenium was discoverable, so that the latter was evidently an independent development. Although in too dry a state to exhibit under the microscope much of the peculiarity of structure of this class of bodies, sufficient was seen to prove that, whatever might have been the character of the lower or normal hymenium, the upper one was of precisely the same nature. In accounting for this appearance, Dr. Lankester considered that in the Fungi, the pileus and stipes were to be regarded as the representatives of the leaves, or nutritive organs in the higher plants, and the hymenium as the analogue of the flower, or reproductive organs, and consequently, that the influence of cold, or of some other external agent, causing an arrest of the development in the vegetable tissue of the Fungus, would be attended with the development of reproductive tissue, such as we know occurs under similar circumstances in the higher forms of plants. That this view of the office of the parts is correct, he considered might be made out by passing from the Fungi to the Lichens, from these to the Hepaticæ, mosses and ferns, in which the green parts are undoubtedly the nutritive tissue of the plant, and the analogues of the leaves. In the Fungi, however, it should appear that the whole body must be looked upon as the analogue of the flower in the higher plants, the thallus being, in this family, at its minimum of development. Hence, then, just as the calyx and corolla stand in the relation of nutritive organs to the more especially reproductive stamens and pistils, so the pileus and stipes stand in a similar relation to the hymenium. He concluded with some observations upon some other abnormal forms of Fungi, one of which, figured by Schæffer, which presents two smaller Fungi growing upon the pileus of a larger one, he considered as produced in the same manner as double seeds, or proliferous flowers.—*J. W.*

Observations on the Noctule. The Noctule does not retire for hybernation nearly so early in the autumn as it is generally said to do. I had long observed its late disappearance in the south of Buckinghamshire, where it is very abundant; but I have more particularly watched it at Cambridge, and now for two seasons I have seen it throughout the first week in November; both years my observations were put an end to by cold and stormy weather. This year (1845) I first saw it on the 25th of March, with its usual high and rapid flight; it might have been about for several days previously, as I had not kept a look out for it, but it could hardly have been about for more than four or five days, as there had been a long continuance of frost and snow to within a week of the 25th. It would be incredible that so accurate and constant an observer as White should have been mistaken on this point, were it not that the species is rare about Selborne; it may be that towards the autumn it migrates to

some towery spot, seeking good lodgings for the winter in company with its fellows: such a habit would also account for the vast congregations of bats that have at various times been broken in upon at Oxford and elsewhere. Its flight is always strong, but varies remarkably at different times, no doubt influenced, like that of the swallow, by the casual range of its prey; at one time it may be seen flying away, straight and swift, at a great height in the air, no more to appear that evening; at another it will be performing a great circle, returning perhaps once in five or ten minutes; or it may be flying low (and then I think silently) along the streets of a town: again it is wheeling round tall elms, in company with others of its own species, at the time of year when the small hairy cockchafer (*Melolontha* (?) *solstitialis*) is swarming about them. Then its powers are seen to perfection, and the great advantage over the feathered tribes that it derives from the mammalian articulation of its wings is beautifully evident. It may easily be brought within shot, for if a stone be thrown just before it, it will follow it nearly to the ground; no doubt thinking it is an insect, and so pursuing it as prey, and not as an object of curiosity, or as a subject for tyranny, as the Purple Emperor is said to do under similar circumstances. Its latest are by no means its lowest flights; even in November I have observed it at such a height, that I could hardly have seen it, had not my eye been directed to it by its cry. This is the cricket-like chirp which it always makes with incessant repetition when flying high; whether it also always makes it when flying low I cannot recollect, but I rather think not: it calls my attention to the animal when it is within a hundred yards or so, frequently giving me the first intimation of its presence: it is so readily distinguished by its peculiar cadence from the chirp of other bats, that however dark the evening, it gives me certain indications of the Noctule. I have often greatly astonished my companions, by announcing the approach of a bat, even before it came in sight: for it is a remarkable fact, that most, or at all events many people are unable to hear this and similar highly stridulous sounds, as for instance, that sometimes emitted by the opening of a pair of scissars. It is also worthy of notice, that for those who hear them for the first time, it is difficult to form the least idea from what direction they come; but I believe the same happens with other kinds of sounds that are heard for the first time, and, if I mistake not, it is said to be a fact, that the intuitive perception we have of the direction in which sounds come, is only acquired by practice and observation. However, this subject of the different capabilities of ears is a highly interesting one, for as we find that most men are quite unable to detect certain sounds which are distinctly heard by others from a great distance, and above almost every other sound, so we are led to understand how there may be forcible sounds which are inaudible to any of mankind, and which nevertheless may be heard at vast distances by the species of creature which excited them. In the few insects that I know to utter any sound, it is a stridulous one. I am not aware whether or not it is yet understood by what means the Death's-head Sphinx raises its cry; if it were, perhaps, similar, facilities might be discovered in other insects, so as to satisfy us they do utter sounds, though they are too shrill and subtle for our ears. May not the use of the tragus, or inner ear of bats be to catch such sounds as these, as the exfoliated nose of some species is to detect the rarest essences of smells? For whilst there are some insects of which we know how the males are guided to the females, there are still more of whose means of finding each other we cannot even guess with any degree of certainty: of the first we know the glow-worm and many others use light as a nocturnal beacon. Some exude peculiar odours, and some we know to make various kinds of sounds. Of the second,

viz., those whose means of finding each other we do not at present know, may not many be guided by light, odour, or sound, not in a condition to be appreciable by our senses, although perhaps there are also others which are endowed with some sense unknown to us? But to return to our subject; what is the use or object of the incessant chirp of the noctule, and other bats? It can hardly be to attract their mates, nor to collect their fellows, for either of these purposes it would probably not be incessant; neither can it be to keep their flocks together, for they are not gregarious, like finches or titmice. It is quite contrary to the habits of most solitary animals. What is the meaning of it then? Can it be to attract or to paralyze insects? This seems hardly probable. It may possibly only be uttered when the animal is in a satisfactory hunting-ground, and so it may guide its fellows to the best elevation for that particular evening. Can the echo of this sound enable the bat to know its distance from the various objects which return the echo? for it is proverbially short-sighted: or, after all, may it not be only one of the awful noises of the night which, whether they were intended to keep man at home, or to enhance the beauties of the day, or for some other reasons, seem at all events to have been ordained by the Creator, under some general rule, if we may, in all humility, be allowed so to speak?—*T. Wolley; Trinity College, Cambridge, March 26, 1845.*

*Notice of the Natural History of Creation.**

FAR be it from the Editor of 'The Zoologist' to suppose that the Holy Scriptures need support, or can by any possibility receive support, from his feeble pen. Such a sentiment would not only be egregious folly and presumption on his part, but altogether foreign to the object and intent of the work he has the pleasure of conducting. Still, since a man on detecting poison mixed with food previously agreeable to the palate, and nutritious to the body, very sensibly rejects the food from a dread of the poison; it does become an act of justice, if not of duty, to show him that the poison forms no intrinsic part of the food which he previously thought wholesome and delicious, but that its introduction is the handiwork of an enemy: and so, if a total contempt of the Holy Scriptures, if hypotheses flatly contradicting the sacred truths they contain, can be sophistically interwoven with the science of Natural History, it is certainly our province to show that the evil forms no integral part of Natural History, but is of extraneous origin, and introduced—most unskilfully—by the hand of the sophist. In attempting to invent a mode of creation, which, if true, must falsify the whole of Scriptural or revealed religion, the author does certainly take some pains to explain his belief in a kind

* *Vestiges of the Natural History of Creation.* Third Edition. London: John Churchill, Princes-street, Soho, 1845.

of deity, but this seems only catching at a straw to save himself from drowning in the sea of avowed atheism ; for the deity appears as hypothetical as the system, and has no connexion that we can trace with the God of Holy Writ.

“The ordinary notion”—we presume the author alludes to the Mosaic Record—“the ordinary notion may, I think, be described as this—that the Almighty Author produced the progenitors of all existing species, by some sort of personal or immediate exertion. But how does this notion comport with what we have seen of the gradual advance of species, from the humblest to the highest? How can we suppose an immediate exertion of this creative power at one time to produce Zoophytes, another time to add a few marine Mollusks, another to bring in one or two Crustacea, again to produce Crustaceous fishes, again perfect fishes, and so on to the end? This would surely be to take a very mean view of the Creative Power—to, in short anthropomorphize it, or reduce it to some such character as that borne by the ordinary proceedings of mankind.”—p. 157.

We willingly leave the anthropomorphizing Record to its own merits, and turning to the scheme suggested in its stead by the author or authors of the ‘Vestiges of the Natural History of Creation,’ proceed to examine, with as much brevity as is consistent with the importance of our undertaking, the details of the scheme before us.

It appears, then, that all living organisms or organized beings owe their existence to a common law, not satisfactorily explained, but seemingly dependent on some chemical or electric agency, by which the germ of life, the first cell with its contained granule, can be at any time called into being in the laboratory of the chemist. This cell, or germ, or gemmule, is the origin of all existing animals. In its first stage, it may be a *Volvox globator*, or any other simple form of animalcule: it goes on begetting its own likeness for many generations, till at last a generation is produced, superior to those which preceded, and a step higher in the scale.

“The whole train,” we quote the author’s words, “of animated beings, from the simplest and oldest, up to the highest and most recent, are, then, to be regarded as a series of *advances of the principle of development*, which have depended upon external physical circumstances, to which the resulting animals are appropriate. * * * The nucleated vesicle, the fundamental form of all organization, we must regard as the meeting-point between the inorganic and the organic—the end of the mineral and beginning of the vegetable and animal kingdoms, which thence start in different directions, but in a

general parallelism and analogy. We have already seen that this nucleated vesicle is itself a type of mature and independent being in the infusory animalcules, as well as the starting point of the fœtal progress of every higher individual in creation, both animal and vegetable. We have seen that it is a form of being which there is some reason to believe electric agency will produce — though not, perhaps, usher into full life — in albumen, one of those component materials of animal bodies, in whose combinations it is believed there is no chemical peculiarity forbidding their being any day realized in the laboratory.” — p. 208.

Mark this ! but hear the author out.

“ Remembering these things, we are drawn on to the supposition, that the first step in the creation of life upon this planet was a *chemico-electric operation, by which simple germinal vesicles were produced*. This is so much, but what were the next steps ? I suggest, as an hypothesis countenanced by much that is ascertained, and likely to be further sanctioned by much that remains to be known, that the first* step was *an advance under favour of peculiar conditions, from the simplest forms of being, to the next more complicated, and this through the medium of the ordinary process of generation.*” — p. 210.

So this germ or animalcule begets its likeness, and so on from generation to generation, while the law remains unaltered ; but at certain intervals, at a certain cycle of generations, say the thousandth, or the millionth, *the law alters*, and after the alteration, the race becomes improved. In illustration of this alteration, Mr. Babbage’s calculating machine is adduced, and a long passage is cited from that eminent writer’s ‘ Ninth Bridgewater Treatise,’ which we forbear quoting, because we are inclined fully to admit the position taken by the learned author, while we totally deny its applicability to the purely physiological question ; and this on the simple ground, that Mr. Babbage’s machine, however wonderful, is under his own control, and therefore, that the alteration of the law is as much a matter of contrivance as the machine itself, and consequently, does not in the least support the hypothesis, that a certain species, after continuing unchanged through many generations, shall, at a certain point in its history, produce some other species. To proceed, at each change of law

“ *The simplest and most primitive type under a law to which that of like production is subordinate, gave birth to the type next above it, that this again produced the next higher, and so on to the very*

* This should certainly be *second*.

highest, the stage of advance being, in all cases, very small — namely, from one species only to another ; so that the phenomenon has always been of a simple and modest character.”—p. 231.

This very highest type, of course, is man, whose progenitors are supposed to have been, an animalcule, a fish, a turtle, a bird, a rodent animal [say a rat], a ruminant animal [say a cow], a digitigrade animal [say a cat], and lastly, a monkey. “Man,” to be sure, “has no tail ; but the notion of a much ridiculed philosopher of the last century [Lord Monboddo] is not altogether, as it happens, without foundation, for between the fifth and seventh week of the embryo a tail does exist.”—p. 199. Still we have lost our tails, but as our philosopher prettily remarks on another subject, “knowing this fact familiarly and beyond contradiction, the healthy and natural mind finds no difficulty in regarding it complacently.”

“But the idea that any of the lower animals have been concerned in any way with the origin of man—is not this degrading? [We opine it is]. Degrading is a term expressive of a notion of the human mind, and the human mind is liable to prejudices which prevent its notions from being invariably correct.”—p. 241. And therefore none but the prejudiced human mind can object to the hypothesis of baboon descent. We, however, prefer being considered the children of prejudice, to the children of monkeys, and cling to the lesser reproach, in order to avoid the greater. It is to us a humiliating reflection certainly ! we are robbed of that noble origin in which we have believed so devoutly, and so long, and have now to trace our parentage to some chattering monkey, or lascivious baboon.

“The development hypothesis would demand, of course, that the original seat of the human race should be in a region where the *quadrumana* [monkeys] are rife. Now, these are most abundant, both in species and individuals, in the Indian Archipelago, although it now appears, from the investigations of Professor Owen, that the chimpanzee of Western Africa approaches nearer to man than any known species of Indian *simiæ*.”—p. 281. Our author, therefore, leaves it an open question, apparently as a sop for the slave-dealers, whether there may not be two original races of mankind, whites, descended from the apes of the Indian Archipelago, and blacks, from the apes of Western Africa.

The reader will at once perceive, that the hypothesis, from first to last, is that of Lamarck : the author himself acknowledges this, but claims as original the idea of leaving out Lamarck’s brightest thought of all, that progressive development arose from the wants of the individual ; but the author will best explain this difference.

“Early in this century, M. Lamarck, a naturalist of the highest character, suggested a hypothesis of organic progress which has incurred much ridicule, and scarcely ever had a defender. He surmised, and endeavoured, with a great deal of ingenuity, to prove, that one being advanced in the course of generations to another, in consequence merely of its experience of wants calling for the exercise of its faculties in a particular direction, by which exercise new developments of organs took place, ending in variations sufficient to constitute a new species. Thus he thought that a bird would be driven by necessity to seek its food in the water, and that, in its efforts to swim, the outstretching of its claws would lead to the expansion of the intermediate membranes, and it would thus become web-footed. Now, it is possible that wants, and the exercise of faculties, have entered in some manner into the production of the phenomena which we have been considering; but certainly, not in the way suggested by Lamarck, whose whole notion is obviously inadequate to account for the rise of the organic kingdoms. Had the laws of organic development been known in his time, his theory might have been of a more imposing kind. It is upon these that the present hypothesis is mainly founded. I take existing natural means, and show them to have been capable of producing all the existing organisms, with the simple and easily conceivable aid of a higher generative law, which we, perhaps, still see operating upon a limited scale.”—p. 238.

The hypothesis of progressive development, when broached by Lamarck, obtained—from the universal respect paid to its author, who was certainly one of the most profound Zoologists that ever lived—a fair and candid examination. This soon terminated in its utter rejection, because, however beautiful, however grand the hypothesis may be, it was found that no fact could be adduced to afford it any support; and its author has suffered severely in the estimation of the very naturalists who would have rejoiced to honour his surpassing talents. Hearing that the hypothesis was revived after so many years had elapsed, we hastened to the perusal of the work before us, not, indeed, with any expectation of becoming converts to what had always appeared so diametrically opposed to probability; still, not doubting for a moment that fresh researches had been instituted, fresh light thrown on the subject. Knowing what the microscope has recently achieved for physiological science, fully appreciating the important discoveries of modern times, we imagined that these and similar labours might be made the basis whereon to raise the superstructure of hypothesis. We flattered ourselves we should, at least,

be led by a competent instructor ; and prejudiced — deeply prejudiced we confess — against the Lamarckian philosophy, we were yet prepared to reap an abundant harvest of facts, whatever might be the fallacy of the inferences. Behold, then, our astonishment, when we found the volume before us to be little better than an assemblage of statements, the greater part of which science has over and over again rejected, as incapable of proof ; a work of shreds and patches ; the philosophy of Lamarck being the thread by which they are united : but the author appears to be no zoologist, botanist, philosopher, nor reasoner, hence his illustrations seem for ever militating against his hypothesis : such, at least, is our impression, but that the reader may form his own opinion on this point, we select those illustrations which the author appears to cherish as most conclusive.

We first select an instance of “the life-originating power at work” in the Vegetable Kingdom. “When lime is laid down on a piece of waste moss ground, a crop of white clover, for which no seeds were sown, is the consequence, the common explanation is, that the seed have been dormant there for an unknown time, and were stimulated into germination when the lime produced the appropriate circumstances. How is it possible to be satisfied with this hypothesis, when we know (as in an authentic case under my notice) that the spot is many miles from where clover is cultivated, and that there is nothing for six feet below but pure peat moss, clover seeds being, moreover, known to be too heavy to be transported, as many other seeds are, by the winds ?” — p. 181. Now, if the reader is willing to believe the clover was created by some chemical action incident on the laying down of the lime, we have no particular objection ; we do not participate in the belief, certainly, but that is immaterial. We allow the author the full benefit of the supposition, that *Trifolium repens*, a phænogamous papilionaceous plant, standing high in the natural system, was created by the chemical action ; and then, we ask, is not such an admission directly opposed to the progressive development hypothesis, which would require that the plant should have been called into existence as a simple cell, that it should then become an alga, subsequently a moss, a fern, a grass, and so upwards, until it arrived at its legitimate place in the system ?

Our next example of “the life-originating power at work” is in the Animal Kingdom, and no less than the notable creation of Acari by Crosse and Weekes. “For the presumption that an act of aboriginal creation did take place, there is this to be said, that, in Mr. Weekes’s experiment, every care that ingenuity could devise was

taken to exclude the possibility of a development of the insects from ova. The wood of the frame was baked in a powerful heat; a bell-shaped glass covered the apparatus, and from this the atmosphere was excluded, by the fumes constantly arising from the liquid, for the emission of which there was an aperture, so arranged at the top of the glass, that only these fumes could pass. The water was distilled, and the substance of the silicate had been subjected to white heat. Thus, every source of fallacy seemed to be shut up. In such circumstances, a candid mind, which sees nothing either impious or unphilosophical in the idea of a new creation, will be disposed to think that there is less difficulty in believing in such a creation having actually taken place, than in believing that in two instances, separated in place and time, exactly the same insects should have chanced to arise from concealed ova, and these of a species heretofore unknown."— p. 192.

The first impulse that occurs on reading this passage, is to point out that the *Acarus horridus* of M. Turpin, the animal to which this statement refers, is most abundant in laboratories and chemists' shops (for observations on which subject the reader is referred to p. 308 of 'The Entomologist'), and that therefore there is no stretch of imagination required to imagine its getting by accident under the microscope of the experimenter, notwithstanding all his precautions. It appears that Dr. Warwick received from Mr. Crosse specimens of this *Acarus*, and compared them minutely with others from chemists' shops, and that he found the two races perfectly identical. It is also a fact beyond the reach of doubt, that what the philosophers have dignified with the name of *germs* of this *Acarus*, are simple exuviae, shed after the manner of its kind. These matters would be sufficient to deter a Zoologist from believing the *Acarus* a newly created animal, and we may here observe that zoological facts are of small value, unless witnessed by Zoologists. There are some fifty or sixty British butterflies: every one of them is well known to Entomologists: but place the whole number before a person not acquainted with the British butterflies, and he will feel very confident that he has seen many species, quite different from any of them; we have repeatedly seen this exemplified, and we hold it a striking proof of the want of precise observation in persons not acquainted with the subject: no Zoologist ever has created, or ever will create Acari; he will raise them from eggs, watch their motions, observe their economy, supply them with food, but never create them, simply because he views them with an understanding eye. And now, turning to our author, we may also inform him, that a Zoologist would never instance an Acaridean

articulate as an instance of the simple form of animal life, to which creation, according to his views, is exclusively confined; he will find, by a reference to his own labours, that his hypothesis does not create animals so high in the scale as an Acarus; and he will also recollect, after a moment's reflection, that if Mr. Crosse could create Acari, the progressive development hypothesis would be at once superseded, at least as far as the Articulata are concerned; we need not trace our parentage to monads, the relationship might be allowed to cease with mites.

“There is another series of facts akin to the above, and which deserve not less attention. The pig, in its domestic state, is subject to the attacks of a hydatid, from which the wild animal is free, hence the disease called measles in pork. The domestication of the pig is of course an event subsequent to the origin of man; indeed, comparatively speaking, a recent event. Whence, then, the first progenitor of this hydatid? So also there is a Tinea which attacks dressed wool, but which never touches it in its unwashed state. A particular insect disdains all food but chocolate, and the larva of *Oinopota cellaris* lives nowhere but in wine and beer, all these being articles manufactured by man. There is likewise a creature called the *Pymelodes cyclopum*, which is only found in subterranean cavities connected with certain specimens of the volcanic formation in South America, dating from a time posterior to the arrangements of the earth for our species.” — p. 186.

The case of the Tinea, or wool moth, we can disprove, since both the species which feed on woollen cloths are particularly injurious to wool in the fleece, so much so, indeed, that farmers often hurry the wool into a bad market, to their great loss, rather than incur the greater loss incidental to the attack of these destructive insects. The hydatid of the pig very probably thrives best on the animal whose flesh may be in an unnatural state from over-feeding, but how can the writer prove it does not exist in the wild boar? The absence of that peculiar disease, incidental to occurrence in great numbers, only goes to show that the natural state of the pig is not favourable to the excessive increase of the parasite: it does not touch on the question of its existence or non-existence. With regard to the other instances, they prove nothing more than that certain living beings occur in certain situations, and under certain conditions, not that they occur in no other situations, or under no other conditions. We build houses and towns, we never think of stocking them with rats, or mice, or cockroaches, yet how often do these animals take possession, and divide

the tenement with man, even with the "chivalric upper classes," without any one attempting to account for their presence by hypothesis: and let us again inquire whether the animals enumerated are of that low rank which is a postulate with our author in new creations.

So much for granules, now for "stages of advance," "very small, namely from one species to another, and always of a simple and modest character." The illustration is this:—"It appears that, whenever oats sown at the usual time are kept cropped down during summer and autumn, and allowed to remain over the winter, a thin crop of rye is the harvest presented at the close of the ensuing summer. This experiment has been tried repeatedly, with but one result: invariably the *Secale cereale* is the crop reaped where the *Avena sativa*, a recognised different species, was sown. * * * * Here the generative process is, by the simple mode of cropping down, kept up for a whole year beyond its usual term. The type is thus allowed to advance, and what was oats becomes rye."—p. 225. Now, without noticing the suspicious nature of the premises, or the weakness of the reasoning, let us imagine the fact established and the reasoning good, and then let us enquire whether the author is aware that, in a natural series hundreds *certainly*, and thousands *probably*, of species intervene between the two plants which he has named as belonging to separate natural families of plants: if the oat of agriculture were to indulge in metamorphic vagary from one species to another, it would, at the lowest possible estimate, have to take hundreds of simple and modest stages from species to species, before it became rye.

Another illustration of the simple and modest advances from species to species, the author thinks may be found in the "curious facts stated with regard to forests of one kind of tree that have been burnt down being succeeded (without planting) by other kinds."—p. 226. In America we have evidence that the gigantic hemlocks are succeeded by poplars, and the live oaks by Rhododendrons and Azaleas, while in England, the ashes of our *Erica cinerea* give birth to dense crops of *Bartramia pomiformis*. The last mentioned of these phenomena, although familiar to us all, would, perhaps, be disallowed by our author, since the phenomenon is rather in the wrong direction: but the author makes no attempt to prove that the new crop bears any resemblance to that which preceded. Such is not the case. But suppose that it were, suppose that Coniferæ were succeeded by Coniferæ, Amentaceæ by Amentaceæ, Ericaceæ by Ericaceæ; suppose

the succeeding crop in each instance displayed the required simple advance in the scale of nature, still it were introducing a second hypothesis more startling than the first, to suggest that the new species had sprung from the ashes of the old.

It were breaking a fly upon a wheel to criticise the Zoology of a work that places *Pterodactylus* both as a lizard (p. 100), and a mammal (p. 200), that describes the Annelida as being both below and above the Articulata (pp. 62 and 203), and that assigns to *Megatherium* the osseous covering of *Glyptodon*; but though we decline the task of criticising details like these, we may be allowed to state, that any attempts to revive the Lamarckian philosophy, without some portion of Lamarckian knowledge, is scarcely likely to succeed. As a work of science, the 'Vestiges of Creation' is on a par with the 'Metamorphosis of Ovid.' It is equally absurd, unnatural, and illogical. In reading Ovid's beautiful work, we make the necessary allowance: we feel that the poet is neither deceiving himself, nor attempting to deceive us; whereas in the present work there is abundant evidence that the author is in earnest; that his hasty and superficial reading has supplied wild schemes and illusory visions, which nothing but time and knowledge are likely to dispel.

*Notice of the Fauna of Cork.**

THERE is no country in the United Kingdom the Zoology of which promises a more abundant reward to the labourer than that of Cork. As we have rested on our oars in the Bay of Bantry, gazing at the wild scenery, and wilder eagles, soaring high up among the inaccessible crags, where they have reared their young from time immemorial; or pursuing our solitary path as the shades of evening deepened, have watched the bats, various in size, flight, and voice, fluttering around us; or have seen the stag, that noblest of British quadrupeds, ranging the mountain-sides free as the air he breathed—we have fondly sighed for a historian of a district so grandly and beautifully wild, so rich in Nature's treasures. Entertaining these feelings, how bitter was our disappointment on opening the volume before us, so barren, so devoid

* Contributions towards a Fauna and Flora of the county of Cork. The Vertebrata by Dr. Harvey, the Mollusca, Crustacea, and Echinodermata, by J. D. Humphries.

of local lore or local interest. But let the reader judge : here are the bats.

1. *V. pipistrellus*, Linn. *Pipistrelle*. Common.
2. *P. auritus*, Linn. (sp.) *Long-eared Bat*. Common.

Here are the mice.

14. *M. sylvaticus*, Linn. *Field Mouse*. Common.
15. *M. musculus*, Linn. *Common Mouse*. Common.
16. *M. rattus*, Linn. *Black Rat*. In old buildings in the northern parts of the city of Cork, near Garrycloyne, &c. Rare.

And is this all that can be said? We doubt not that these two bats and three Mures do occur, but are there no others? How interesting it would have been, had the author explained to us the cause of absence in the Hanoverian rat, the harvest mouse, the water-rat, the two or three species of short-tailed field-mice, the dormouse, the squirrel, and the hare. We do not say that all these animals exist in the county, indeed we remarked the absence of the English hare throughout Ireland, but surely something should be said on so interesting a subject.

Then we may again inquire, is Ireland so deficient in birds? We never saw birds so numerous either in species or in individuals, as in this very county, and yet the list is far below that of a carefully compiled local catalogue in any part of England. One or two of the captures in ornithology are of interest; for instance, that of the Fulvous, or Griffon Vulture, already cited, and White's Thrush, which occurred at Bandon, and is now in the possession of Dr. Allman, of Dublin.

Our criticisms of this very unsatisfactory local list of quadrupeds and birds will, perhaps, be received as a hint by many of our contributors, whose lists still remain unpublished. Our idea of a local list is, that it should contain the name of every species occurring in the district, and therefore that it should be drawn up by a competent observer, that all unauthenticated specimens in museums or private collections, all purchases of interested dealers, should be rejected as apocryphal. We hold, also, that it is not required from the author of a list to glean and reprint histories of each bird, extracted from works of ready access, or to describe plumage, figure, colour, nest, or eggs, if these points are well understood: still, any facts relating to the history of *individual birds*, either not common to the species, or not recorded; any facts *erroneously treated* by our high authorities, any facts bearing on the habits, food, or migration, nesting or behaviour of a species in reference to the *particular place* to which the list refers;

these, together with local names, are the points which make such lists of enduring value, and must render 'The Zoologist' the great text-book of future Ornithologists. It requires, perhaps, a little tact to estimate facts correctly, and we wish our correspondents, to give this point a greater share of their attention. For instance, it would be a fact devoid of interest, that the kingfisher occurs at Great Yarmouth, or at Bonchurch; but it is a fact equally replete with interest, that it migrates at both those places. It would be a matter of small interest that woodpeckers abounded in the Isle of Wight, but their absence from that island is an ornithological fact of unusual value. Returning to the 'Fauna of Cork,' it is but justice to say, that the list of invertebrate animals, as far as it goes, is much better than that of the vertebrate, but the insects, for which we looked with much anxiety, are entirely omitted.

*Notice of the Natural History of Animals.**

ALTHOUGH the *subject* of this volume is one which has been somewhat hackneyed of late, still its *illustrations* are so excellent, and its *getting up* so admirable, that we incline to recommend it to the notice of our younger readers. The author has carefully concealed that depth of erudition which a Professor of Comparative Anatomy in King's College must, of course, possess; and one would suppose him almost unacquainted with his subject, and merely compiling for the use of those to whose tender minds knowledge should be administered in minimum doses. We must, however, caution the Professor against too great carelessness: it must be perfectly familiar to him that the Desmidiæ, which he has figured so admirably at p. 103, are now almost universally regarded as members of the Vegetable Kingdom; he should have quoted the opinions of Mr. Ralfs on this subject, and detailed their mode of reproduction, than which the whole science of Natural History has no fact more wonderful or more abnormal. Let us not be understood as at all giving our opinion as to their vegetable nature; we admit, without hesitation, our inability to decide; indeed, our impression is that they belong to the Animal Kingdom: but then the really profound researches of Mr. Ralfs

* The Natural History of Animals, by Thomas Rymer Jones, F.R.S., F.Z.S., &c. Vol. I. London: Van Voorst, Paternoster-row. 1845.

should be quoted in every work that alludes to these obscure beings. Again, we would inquire by what arrangement the doubtful *Desmidea* can be placed on our author's ascending scale, above such manifest animals as *Lobularia* and *Actinia*. Again, the British Feathered Star (p. 246) should have been furnished with ten arms instead of nine (see Pennant, Fleming, and Lamarck); the real number is five, but these are divided to the base, so that the apparent number is invariably ten. Why are not the most interesting observations of Mr. J. V. Thompson on this singular animal quoted? (See 'Edinburgh Philosophical Journal,' vol. xx.) Instances of this kind might be multiplied, but it is sufficient that we just allude to them, hoping that greater care will be exercised in the volumes which are to come.

*Notice of the 'List of British Vertebrata.'**

It was certainly a great drawback from the merit of Mr. Yarrell's 'History of British Birds,' that he did not supply, immediately under the English name of each, the name also of the genus and species which he wished to adopt. The present list supplies the deficiency, and we are now furnished by the authors with the English and scientific name of every British Vertebrated Animal; those of the Quadrupeds and Reptiles being supplied by Mr. Bell, those of the Birds and Fishes by Mr. Yarrell; a reference is also given to a figure of each species in the works of these gentlemen. This little work is so printed as to be available for labels; and we think it quite likely to become the standard of nomenclature throughout Great Britain.

Notice of the Proceedings of the Berwickshire Naturalists' Club.

THIS number contains four Zoological papers.

1. *On the Flight of the Peregrine Falcon in pursuit of prey.*

By RALPH CARR, Esq., of Dunston Hill.

From this paper we make the following extract, which will be read with interest.

"In calm weather, and if the falcon does not stoop from above, but

* A Catalogue of British Vertebrated Animals, &c. &c. London: Van Voorst, Paternoster-row.

commences the chase on a level with a flock of pigeons sprung from a stubble or field of new-sown wheat, I believe they will generally escape in safety to the dovecot, or even rise higher in the air than their pursuer, and so set her at defiance. But even in such a chase as this the tercel would be very likely to kill his bird, as he will often mount with great spirit and success under discouraging circumstances. I am inclined to suspect that pigeons, when hard pressed by falcons, are sometimes half suffocated from having been surprised with a full crop, and so fall an easy prey where they would otherwise escape. This, however, requires confirmation; and is yet little more than conjecture. In windy weather the long-winged hawks fly with great spirit, if the day be fine and the gale not actually tempestuous. They are also invigorated by cold. At such times, I believe, they are more than usually successful in their attacks upon flights of pigeons rising from the stubbles. They fly with overwhelming speed downwind, very rapidly across the wind, and even beat up directly against it as quickly as domestic pigeons. The rising and descending of a falcon across or against a high wind is beautiful sometimes in the extreme; and her alacrity in such weather terrifies the quarry before her, and prevents it from seeking safety by mounting."—p. 93.

"One very fine female falcon of the second year (having flown much at liberty during the summer), would now and then make a swoop at our pigeons, when her blood was up from a recent disappointment after partridge. One day, having driven a partridge into a hedge, not far from the farm-yard, and having thrown herself up into the air (as is always observable when the fatal stroke has been evaded), I saw her mounting up with her breast to the north-wind, instead of wheeling round, and "waiting on," until the partridge could be again started. It was evident she had something before her, for her training was excellent, and she knew her duty perfectly. She had scarcely reached a good position, when a flight of pigeons appeared, coming down the wind at great speed, and making for their dovecot, just as a hare will press on towards a cover in spite of a greyhound slipped to intercept her.

"The falcon hung on the wind till the flock going like lightning had passed under her, when she instantly stooped in the grandest manner, and by the impulse threw herself first in behind them, and then again up aloft, exactly over the foremost birds, and completely commanding all and each. She now selected a white pigeon, and descending upon it, down it went into the rough herbage of a hedge, with merely a feather or two grazed from its back, and quite unhurt; the falcon, instead of turning round to secure her prey, as she would

have done with a partridge, was content with her victory, and came straight to the lure."—p. 96

2. *Note on the Glow-worm.* By Mr. GEORGE HENDERSON, Surgeon, Chirnside.

3. *List of Insects taken by Mr. Hardy in June and July, 1843, in the neighbourhood of the Pease Bridge.* By P. J. SELBY, Esq., of Twizell House.

This is merely three hundred and twenty-two Latin names, unaccompanied by a word of explanation.

4. *Description of a New Species of Nymphon.* By H. D. GOODSIR, Esq.

THIS valuable paper we extract entire.

"NYMPHON GIGANTEUM.—With the palpi twice as long as the rostrum, and the two last joints of equal length; with the pincers of the mandibles very long, slender, and linear; and with the oviferous legs longer than the first four joints of the ambulatory legs.

"*Description.*—The whole animal of a straw colour, except the proximal extremities of the joints of the legs, which are pink-coloured. Two joints of the mandibles somewhat long and rather powerful: the pincers are weak, slender, and almost linear. The palpi are larger than the mandibles, five-jointed, slender, and the first or proximal joint is about one sixth the length of the second; the second rather longer than the third, and clavate; the fourth and fifth equal, which last is ovate and slender. The rostrum is hardly so long as the first joint of the mandible, and is almost linear, having a very slight dilatation about the middle. It is concealed altogether on each side, by the mandibles and palpi, and very slightly superiorly, by the mandibles alone. The first segment of the body is much larger than any of the following, and is very much dilated anteriorly, for the attachment of the organs just described; posteriorly, it is also dilated, and gives attachment on either side to the oviferous legs, and dorsally to the ocelliferous tubercle, which is erect and truncated. The oviferous legs are very strong, and have the two middle joints robust and short; the distal joints are hispid. The ambulatory legs are long and slender; the two tarsal joints equal of length, claw strong. Span of the legs 6 inches.

"The above described Nymphon is very similar in its characters to Nymphon Johnstoni. The forms, however, of the mandibles, palpi and oviferous legs, are very different and sufficiently strong to justify the formation of a new species.

"Taken in the sea at Embleton."—p. 114.

Habits of the Bush or Stub Rabbit. In confirmation of the observations contained in the March number on the habits of the *bush* or *stub* rabbit, and its unwillingness to take to its burrow, like other rabbits, except in very urgent cases, (Zool. 903); I venture to mention the following occurrence, which took place many years ago, in Kent. In many parts of that county, and the neighbouring one of Essex, the propensity of the wood or stub rabbit not to go to earth, is well known; and very small and beautiful little beagles, called rabbit-beagles, are kept by most farmers for the purpose of hunting them; hardly large or fast enough to run down, even in many hours, a stout hare, still the persevering energy with which these little hounds will hunt a rabbit, rewards their toil in the end, either by fairly catching it themselves, or, which is very often the case, by the aid of the master's gun. Several years ago, in the month of March, I was invited by a friend to the residence of his brother, then unoccupied, in a part of Kent adjoining some woodlands, of very great extent. After having remained there for a couple of days, it was arranged that we should, the next day, have my friend's little pack of beagles out, consisting of about seven couple, and of which he was very proud. No one of these active little things was larger than a lady's lap-dog, but they were very strong, and most beautifully formed and marked, and their notes "most musical." Early one morning, I was summoned by my friend to accompany him upon the previously arranged hunting-expedition, and the weather being then very warm, when the sun was full out, the scent later in the day would consequently have been soon gone. It was therefore scarcely complete daylight, when my friend, myself, and his man, all on foot, and the two former with guns, accompanied by the seven couple of beagles, set forth from the house; and after crossing several fields, and coming near a large wild woody district, called the Chart, the hounds were there thrown off, and we tried several likely spots, and, as I truly believed at the time, in search of a *hare*. After some time, a most musical and heart-stirring note sprung from one of these little beagles, in which all the others speedily joined, and away they went, down a hedge-row, across a couple of fields and into the Chart. Here the hounds had the best of the hunters, and fairly left us behind, the underwood being so thick and difficult to get through. Still I was at a loss to know why we should carry the guns, but believed it was to kill any woodcocks we might meet with in our run, of which I was told there were often a good many in these extensive woods. Our little pack got away from us, completely out of sight, though not quite out of hearing, and after running far into the cover, turned again, and came back towards us; and then my friend told me, for the first time, the purport of carrying the gun, not so much to kill any woodcocks we might meet with, as to shoot what the little hounds might not of themselves be otherwise able to run into. "Sometimes," said my friend, "we have a run for a couple of hours or more, and I wait, till in the end I generally get a shot, and kill it." This seemed to me but an odd system of hunting, but I did as I was told, and tried to get a-head of the hounds in cover, so as to get a shot as directed to do; but most fatiguing and distressing as this was, from the powerful heat of the sun and closeness of the woods, I never could quite accomplish my purpose; for although I seemed to be just in the right place, I never could discover the hare, though sometimes a rabbit would cross me at full speed, but no hare. At last my friend, more fortunate than myself, shot, and his fine, clear *whoo-whoop* declared the chase was over, and which had then lasted more than an hour. I approached the spot, and found all our little four-footed companions baying and barking round my friend, who, like myself, was in a profuse perspiration, and thoroughly tired with running, and at whose

feet lay a large buck *rabbit*. "What," exclaimed I, "have we been all this time toiling and running through these woods, till almost burst for want of breath, and torn to pieces, after a *rabbit*?" "Yes," said he, "it is a stub-rabbit! You may hunt them almost all day long, but you can never hardly drive them to ground." — *W. H. S.*; *Hatton Hall, April 8, 1845.*

Notes on the Birds of the Isle of Wight. By the Rev. C. A. BURY.

(Concluded from p. 933).

I HAVE NOW reached the last order of Birds. High time, too, you and your readers will perhaps be disposed to say. I certainly have, in my descriptions, betrayed somewhat of the prosiness of the old man. You, Mr. Editor, have kindly expressed your consideration for my dotage, and been pleased to say you liked the particularity of my communications. I hope your readers will be equally indulgent to the infirmities of a premature old age. I believe, however, I shall not trespass greatly on their patience in the description of the swimmers; inasmuch as, numerous as they are, comprising about one third of the entire number of British birds, I am less well acquainted with them than with the four preceding orders. Fewer will be given upon my own authority; and less said of their habits. The southern shore of our island, on which I reside, is not much frequented by sea-fowl. The coast is for the most part either rock or shingle; and consequently supplies little food to the aquatic tribes. Sandown Bay and Brading Harbour, on the eastern coast, are more favourable: but on the northern shore, indented with small bays, and abounding in mud-flats, many species of sea-birds abound. Yarmouth especially, situated nearly at the western extremity, seems to be a favourite resort, and more particularly at the periods of migration; as if it were an established resting-place — a sort of house-of-call to the feathered travellers: which, by the way, favours my notion that many species, when leaving this country for warmer latitudes, do not cross directly from our western counties, but coast along till they reach a narrower passage. Perhaps, too, some species migrate along the coast till they reach the locality in which they mean to fix themselves. Be this, however, as it may, it is quite certain that Mr. Butler, mine host of the Bugle inn, Yarmouth, a professed bird-stuffer, and well known as such to some of our leading ornithologists, does pick up, especially in spring and autumn, specimens of many species, and sometimes of very rare ones. To Mr. Butler, therefore, I am indebted

for much of what I am about to lay before your readers in the following notes; while to my old ally, better known to your readers, R. Loe, as an indefatigable wild-fowl shooter of more than forty years' standing, I am under considerable obligation also.

Of the genus *Anser* I have to record the occasional appearance, in hard weather, of four species.

The Bean Goose has been killed by R. Loe, pretty often in the neighbourhood of Pan-common, and up the Newchurch marshes. The only specimen I have seen is in the possession of Mr. W. Jacobs, of the Parsonage, Newchurch. This bird was shot by Mr. Jacobs, in the immediate neighbourhood.

The White-fronted Goose has also been killed not unfrequently in the same vicinity. I have not seen a bird of this species, but (alas! for the infirmity of the human intellect) missed seeing one only last winter. One out of three that appeared was shot by the son of the occupant of Alverston-mill, in February last. I was in the neighbourhood a day or two afterwards, and actually within a quarter of a mile of the mill; but my anxiety to find the little black woodcock, drove the goose out of my head: so that, desirous as I am to state the occurrence of birds on my own authority, I, in this instance, lost the opportunity of so stating the white-fronted goose, because my head could not carry the complex idea of finding a live woodcock and inspecting a dead goose.

The Bernicle Goose I have seen in possession of Mr. Plumley, of the Freshwater Hotel: it is not uncommon.

The Brent Goose is abundant off the eastern shore of the island, but very rarely comes inland. R. Loe has shot but one.

Wild Swans have occasionally appeared in severe weather. R. Loe has seen this fine bird three or four times. On one occasion, a flock of six was seen by him to fly down into the meads above Newchurch. He immediately proposed to a friend to get a horse and stalk them: this they succeeded in doing; but in the mean time the flock had been increased by nine additional birds, two of which were cygnets. One of the stalkers had proposed shooting with ball, which was not assented to by the other. A second proposition was made, namely, that they should fire at the heads of the swans: here, too, unfortunately — at least so would have thought and said Col. Hawker — they differed in opinion: and the result was, that on firing, all the swans rose, leaving only a solitary cygnet behind. This occurred some twenty years ago.

The common Sheldrake has been obtained occasionally in Brading

Harbour, and at Yarmouth. I have seen a very fine specimen in the possession of Mr. Butler.

The Shoveller Mr. Butler obtains occasionally: an adult male, in full plumage, formed part of his collection in April, 1844. R. Loe, some years ago, killed two half-grown shovellers in the gravel-pits in Bordwood Forest.

The Pintail Duck occurs frequently on the northern coast of our island.

The Wild Duck is frequently obtained in Brading-marshes and Sandham-flats during winter; and not unfrequently up the river above Newchurch. There is a favorite spot on the edge of Pan-common, to which ducks and other wild-fowl resort, coming in from the sea at "flying time," where they are waited for by shooters; and many's the night R. Loe has spent in that vicinity. In addition to his seldom-failing gun, R. Loe was wont to employ another mode of capture, namely, setting "gins" in the narrow cuts, an inch or so under water, in the tracks of the waddlers — if that term may justly be applied to the wild duck, which moves along pretty briskly, and in no very awkward gait. A pair or two of wild-ducks usually breed somewhere on the banks of the stream which I have frequently mentioned as intersecting the Newchurch-marshes, as I generally hear of ten or twelve flappers having been shot in the season. R. Loe persists in maintaining that the wild duck is subject to variety in plumage. He once saw shot out of a flock in Brading Harbour, a perfectly white duck; and he himself once shot a pied duck. He affirms that in figure and size, form of the bill and fineness of leg, both these birds corresponded exactly with the ordinary wild duck; and is half angry with me for questioning their being thorough wild bred. Mr. Butler also wrote me word that he obtained last winter a purely white wild duck.

The Garganey. R. Loe informed me that his brother-in-law, Mr. Rawkins, once killed on a pond at Hardingshoot, near Brading, two birds, of which Loe's description corresponded exactly with that of the garganey.

The Teal is obtained frequently in September, and occasionally throughout the winter, in Brading Harbour, and in the marshes. I have myself flushed teal on the borders of Pan-common: and in March 1843, R. Loe sent me a pair of teal, shot by himself in the gravel-pits in Bordwood Forest.

The Wigeon is sometimes seen reposing during the day in great numbers in Sandown Bay, whence the flock comes into the marshes to feed at "flying time."

The Eider Duck. J. B. Tuttiet, Esq. has in a collection made by his late father, two eider ducks, male and female, in immature plumage. They were shot by a fisherman at Newtown, and brought to Sir R. Simeon, Bart., by whom they were presented to the late Mr. Tuttiet.

The common Scoter. I obtained a specimen of this bird, shot off Steephill, February 10, 1841. I have occasionally seen it on the wing off Bonchurch; but they have been unusually numerous this spring: April 18, 23, 24 and 25, especially, several parties of from seven to thirty birds passed to the eastward.

The Pochard is obtained frequently about Yarmouth.

The Scaup Duck has been met with occasionally in the same locality.

The Tufted Duck also is of frequent occurrence at Yarmouth. R. Loe once shot this bird on the river just below Alverston.

The Long-tailed Duck. I have in my collection a specimen of this rare bird; for which I am indebted to the kindness of Sir R. Simeon. It was shot off Brightstone, March 10, 1844, and proved, on dissection, to be a male in immature plumage. I saw shortly afterwards another specimen, which I judged to be a female, in the possession of Mr. Butler, obtained by him during the winter of 1842-3.

The Golden Eye appears off Yarmouth occasionally in very severe weather. I saw a remarkably fine male in Mr. Butler's possession, killed during the winter of 1843-4. This bird has, according to R. Loe, been met with in Brading Harbour also.

The Smew Mr. Butler states to have been met with occasionally.

The Goosander. A fine adult male was shot upon a pond at Knighton, in the winter of 1841-2, by Mr. Wavell, in whose possession the bird still remains. The lower part of the neck in front, and all the under surface of the body, which Mr. Yarrell describes as of a "delicate reddish buff," and which both Mr. Wavell and Loe, who preserved it, assure me was the original colour in this bird, have faded to a pure white.

The Great-crested Grebe is not uncommon. In March, 1841, Mr. Hodges, one foggy day, found four of these birds on St. Catherine's Down. Being unable to rise, they were captured; and Mr. Hodges, after cropping a wing of each, turned them loose on a pond at the Hermitage. In about six weeks they wandered from the ponds, and were picked up dead, apparently starved to death. Mr. Hodges preserved the skin of one, which is now in my possession: it is that of an adult bird, the crest and tippet being large and full. Mr. Butler

meets with this bird not unfrequently at Yarmouth; and a young friend brought me one he had picked up dead on the shore, December 19, 1844. In this bird the crest and tippet are immature.

The Red-necked Grebe has been obtained by Mr. Butler two or three times.

The Sclavonian Grebe I give on the same authority, as having occurred occasionally.

The Little Grebe is common enough, during winter, on the river about Newchurch; but does not remain to breed there. Two or three pairs were wont to breed on Westmill-pond, near Carisbrooke, so long as that pond existed. Many more passed the winter there; but, whither did these birds migrate? — is a question more easily put than answered.

The Great Northern Diver was seen by me off Dunnose, February 27, 1842. When first observed, it was nearly one hundred yards from the shore, but gradually swam out, and joined a flock of red-throated divers, thus enabling me to decide positively on its species, the difference of size being most manifest. My friend, E. Peel, Esq., possessed a specimen of this bird, which was shot while asleep in Sandown Bay; and Mr. Butler has once obtained it: this bird weighed nine pounds.

The Black-throated Diver. In the autumn of 1841 (the exact date I have lost), I saw a fine adult bird of this species diving along close in-shore. I had no gun, or I might probably have obtained it: all I did get was a tumble I have not yet forgotten, in running along the rocky shore to be up with the bird when it emerged. I have also seen one of these birds, in immature plumage, which was shot in Sandown Bay; and another in the collection of the late Mr. Tuttiet.

The Red-throated Diver is very abundant all winter off our shore. The earliest date of its appearance I find recorded in my note-book, is October 30: but the numbers are not great till about the first week in December. By that time they have become very numerous, and are constantly passing and repassing, generally in small flocks, and in two lines, one within half a mile of, and the other about a mile and a half from the shore; and so exactly do they keep the line, that, once get your boat into it, and scarcely a bird will pass out of shot: while the greater number (and I have seen some dozens in the hour) will cross within twenty yards. Of the hundreds I have seen, only one with a *red throat* has come under my notice; and that was on April 24, when the bird may be supposed to have assumed the breeding-plumage. What induced this bird to remain here so late in the sea-

son, of course I had no means of ascertaining; but as the circumstances under which he came ashore were somewhat curious, I will proceed to relate them. It was in the year 1839, on, as I have already intimated, April 24, when some fishermen observed floating off Steephill Cove, what at first they took for a cask of spirits; nearer inspection showed it to be one of those handsome fellows which rejoice in the various significant appellations of fishing-frog, sea-devil and wide-gab, but which, for accuracy's sake, I will denominate scientifically, *Lophius piscatorius*. What brought this said handsome fellow to the surface, and kept him there, was matter of surprise to the fishermen, till having very unceremoniously, by means of their boat-hook, hauled him on board, they discovered, protruding from his throat into his cavern of a mouth, the head of a red-throated diver; the body of the bird being entombed in lower regions. How he got there, it is not easy to guess: whether he was napping on the surface, and so was caught by Master Lophius; or whether, during a submarine excursion, he blundered within his capacious jaws; seems almost equally improbable. There he was, however; and what is more, all alive and kicking, so soon as one of the men afforded him room to kick, by pulling him out of the stomach: for no sooner was he extricated from his perilous position, and found room for play in the mouth of his captor, than he attacked most furiously the interior with his formidable beak, to the sharpness and strength of which I can speak most positively, from experience thereof. The fish was nearly dead, either choked by the Tartar he had caught, or rendered so specifically light by the mass of feathers he had gorged as to be unable to descend to the bottom, where he is said more commonly to reside. Both fish and bird were purchased by my friend J. B. Martin, Esq., and presented by him, the fish to the College of Surgeons, and the bird to the Zoological Society. On enquiring at the gardens for my old acquaintance in the course of the following year, I was informed he lived there only six months.

The common Guillemot abounds both in summer and winter; and breeds in considerable numbers in the Freshwater cliffs. I believe it to be correct that this bird and the razor-bill do carry their young from the ledge of the cliff on which they were hatched, down to the sea, on their backs. They then proceed out to sea, pass the summer in mid-channel, and, as winter approaches, are frequently seen in-shore.

The Little Auk I give on the authority of Mr. Butler, who has obtained it occasionally. I have, however, seen pass my boat, two or three times, a little bird for which I can find no other name.

The Puffin still breeds in the Freshwater cliffs ; but its numbers are fast decreasing, owing chiefly, I believe, to the practice of wantonly shooting them.

The Razor-bill also breeds in the Freshwater cliffs ; and its habits seem to correspond with those of the guillemot. In February, 1840, after a succession of gales, I picked up on the shore several of these birds, as well as of guillemots and kittiwakes, starved to death, apparently.

The common Cormorant breeds on the Needle rocks, and frequents our coast throughout the year.

The Shag also breeds on the Needles ; and is nearly as common as its congener.

The Gannet appears occasionally during winter ; but, although I have seen from ten to twenty each season, I never observed any but adult birds. February 12, 1840, I saw a gannet which had been picked up dead on the cliffs : this was immediately after a very severe gale of wind.

Three or four species of *Tern* have been obtained by Mr. Butler. A pair of what, from Mr. Butler's description, I infer to have been the *Common Tern*, once bred on the Freshwater Downs.

The Black Tern was obtained by Mr. Butler in the summer of 1843.

The Arctic Tern I have seen a specimen of, shot out of a party of six or seven in Sandown Bay, in the autumn of 1843.

The Masked Gull. A specimen of this rare bird came into my possession most unexpectedly, during the month of March of this year (1845). I was informed that several gulls with black heads had been shot at Shanklin, and were still in the possession of a person living on the beach. Thither I directed my somewhat hasty steps, in the pleasing expectation of obtaining what I had never seen on this coast, namely, a specimen of *Larus ridibundus* in its summer plumage. In reply to my interrogation, the man was very sorry, — was afraid they had all been thrown away, — looked amongst certain lumber, — and produced, in shabby condition enough, what, he said, was not half such a bird as some of them, but which my eager eye at once detected, from its diminutive size, and the form of the dark markings of the head, to be no *ridibundus*. I pocketed and brought home my suspected prize ; and a careful examination and comparison with specimens of *ridibundus*, left on the mind of my friend Mr. Dawson and on my own, not a shadow of a doubt that the bird before us was a veritable specimen of the masked gull, (*Larus capistratus*). The plumage of the head is in course of change, and presents a very interesting

appearance ; for while the feathers of the crown of the head would seem to have changed their colour, inasmuch as some are still edged with white, some with a lighter shade only of the colour of the feather, and there are no young feathers growing up ; all the front of the throat and the sides below the level of the gape, are thickly studded with young dark feathers, the full-grown feathers being still pure white. There are, however, on one side, just above the level of the gape, a few young dark feathers, which are tipped with white. This would favour the notion that the change on the crown of the head had been effected by the growth of new feathers ; that the change having commenced there, the old feathers were all shed ; and that the plumage of that part would have retained through the summer its present mottled appearance. The rest of the plumage is that of an adult bird.

The Black-headed Gull is common during winter, especially if the weather be severe.

The Kittiwake also is common throughout the winter.

The common Gull also passes the winter with us ; associating with the kittiwake and black-headed gull.

The Lesser Black-backed Gull is very abundant during the winter months, even more so than the herring gull, with which it frequently associates. I have observed both these birds, when coasting along in search of food, almost invariably fly up-wind. Does not this habit favour the notion of their hunting by scent ? One or two pairs only remain to breed on the Freshwater cliffs.

The Herring Gull remains with us all the year, and breeds in great numbers on the Freshwater and Culver cliffs. A writer in the 'Field Naturalist's Magazine' (ii. 74) has given some account of the "Calbourne Gull," which is both interesting and correct, except as to its species. He has stated it to have been either *Larus hybernus* or *L. rissa* ; but I am informed by those who knew the bird, and are competent judges, that it most certainly was the herring gull (*L. argentatus*). The following history of this bird is from the pen of Miss Simeon, daughter of Sir R. Simeon, Bart., and cannot fail to prove interesting to your readers, as illustrative both of the docility and of the longevity of the herring gull. "Phil was bought in the year 1802 or 1803, by grandmamma Barrington, of some boys, who brought him in a basket with his wing clipped. She was then living at the Rectory. Phil grew so tame that he used to sit on the mat, in the middle window of the drawing-room, between mamma and aunt Jane, whilst they worked, seated on two stools at the open window. He used to go into the village, and John Price, who kept the little shop, would give

him all the cheese-parings he could find; so Phil became a regular customer. The Westover pond was a favourite resort, but he always returned to the Rectory as his home. One spring Phil suddenly took his departure, but returned in a few days, bringing with him a partner. She lived on the Westover pond, and remained a few weeks only. The next year Phil again went away, and, after an absence of some weeks, returned alone. This he continued to do every year. After the death of John Price, Grapes, his successor in the village shop, was accustomed to feed him; and every body put by their remnants for Phil. The village children would give him part of their dinner; and when in fun they threw little stones at him, he would bob his head, and not fly away. At last he went away in the spring as usual, and never returned. This was five or six years ago; and I feel no doubt that the gull bought at Freshwater by the gentleman Mrs. Spencer mentioned, was poor Phil. He was said to be well known at Freshwater as the 'Calbourne Gull,' by the loss of one feather in the right wing."

The Great Black-backed Gull occurs only now and then: I have seen it pass Bonchurch; and Mr. Butler obtained a specimen during last winter.

The Glaucous Gull has been obtained occasionally by Mr. Butler. I saw it on the wing twice during last winter; and there is a specimen in the museum of R. H. Haslar, obtained in the neighbourhood.

Some species of *Skua* makes its appearance in the Solent sea, sufficiently often to have attracted the attention of fishermen and others, who have given the bird a name I shall not transcribe, derived from the habit of this genus of pursuing the gulls, and compelling them to disgorge the contents of their craw.

The Pomerine Skua was obtained during last winter by Mr. Butler. The specimen is in the possession of J. P. Fletcher, Esq., of Ruxley Lodge, Esher; to whose kindness I am indebted for identifying the species, both on his own authority, and on that of Mr. Leadbeater, through whose hands the bird in question passed.

The Manx Shearwater was obtained by Mr. Butler, some eight years ago.

The Forked-tailed Petrel I saw in the possession of Mr. Butler; the only specimen he had ever met with.

The Storm Petrel also I saw in Mr. Butler's collection. He has obtained it three or four times.

CHAS. A. BURY.

Bonchurch, April 30, 1845.

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from p. 934).

DIVISION IV.

Peregrine Falcon, *Falco peregrinus*. Scarce. Seen during the winter months : a few are suspected to nestle in our forests. There still exists in the province of Antwerp, a little village named Falkensweert, where these birds are trained for hawking.

Rough-legged Buzzard, *Buteo lagopus*. Scarce. Feeds on small Mammalia. Comes in November and remains during part of the winter. It is only occasionally seen, several years often elapsing without the capture of a single individual being recorded.

Hooded Crow, *Corvus Cornix*. Comes in October, and leaves in the beginning of April. Local, but annually seen in certain pastures on the banks of rivers in different parts of the country.

Siskin, *Carduelis Spinus*. Comes in autumn and leaves in March. Common ; gregarious, small flocks being seen feeding on the alder. I suspect a few may nestle here, having heard this bird's note-call as late as the month of June. It is remarkably tame in captivity.

Mountain Finch, *Fringilla Montifringilla*. Comes in October and leaves in April. M. De Selys believes this species nestles in the Ardennes, as he has shot specimens in July. Its real summer residence is, without doubt, the northern climates of Europe. I have reason to suppose that the females often form separate flocks, as the chaffinches are known to do.

Anthus aquaticus, Temm. *Al. Spinoletta*, Linn.? not of Selby &c. which is, I believe, the *A. littoralis* of Brehm, *A. obscurus* of Temminck and Pennant, and *A. petrosus* of Montagu. This bird is seen in couples or singly on the banks of unfrozen streams and ponds during the winter, coming in November and leaving in March. Some writers suppose it to be the young bird, in winter plumage, of *Alauda Spinoletta* (Linn.), which in summer inhabits the mountainous countries of central and southern Europe, and has the outer quills of the tail pure white. I have, however, some doubts respecting this, as nearly all the birds that sojourn with us during winter, come from the north, to seek a more genial climate than the one they leave. This bird settles on trees.

As the synonymy of this and allied species of *Anthus* has been singularly confused, I give here a description of the one I mention, taken from two birds procured last December. The following diagnoses

will I think be sufficient to distinguish it from other British species, and these from each other.

A. Hind claw *short, curved*, fit for perching.

a. Outer tail feather with part of inner and outer web *dirty* or *greenish* white.ANTHUS OBSCURUS, Penn.

b. Outer tail feather with part of inner and outer web *pure* white.

1. Length *more* than 6 inches. Back dusky, breast and abdomen greyish, *without yellow*.ANTHUS AQUATICUS, Bechst.

2. Length *less* than 6 inches. Back oil green. Sides of the breast *yellow*.....ANTHUS ARBOREUS, Auct.

B. Hind claw *long, slender, nearly straight*, fit for walking.

a. Length *more* than 6 inches. Breast with feathers triangularly tipped with blackish brown. Flanks yellowish brown. Bill strong. Back *brown*.....ANTHUS RICHARDI, Vig.

b. Length *less* than 6 inches. Breast with dark brown oblong spots. Flanks regularly spotted. Back *oil green*. Bill slender.....ANTHUS PRATENSIS, Auct.

Description of *Anthus aquaticus*, *Bechst., Temm., Mihi.* *Alauda Spinoletta, juvenis, Linn.?*

Length about $6\frac{1}{2}$ inches. *Bill*: upper mandible horn-colour, with base of the margin yellow; maxilla yellow, with tip blackish. *Throat* white, with a slight grey tint. *Neck*: front white, very slightly grey, sides olive, intermixed with white; nape olive. *Head*: dark greyish olive, with a whitish band over each eye, and also the space between the bill and eye white; auriculars olive; most of the feathers have not darker shafts. *Breast* white, the feathers marked along their shafts with irregular elongate greyish spots, which increase in size on approaching the abdomen. *Back* greyish olive, slightly tinted with wood brown, shafts of the feathers slightly darker; those towards the tail very silky, and without darker shafts. *Wings*: primaries dusky, extreme outer margin pure white, inner webs growing insensibly greyish inwardly from the shaft, outer webs slightly emarginated about a third before the end; secondaries dusky, edge of inner webs greyish white, they are wide, truncated posteriorly, but slightly sinuated or notched at the tip or extremity of the shaft; scapulars elongate, dark wood brown, outer edge pale. Greater and lesser *wing-coverts* greyish olive edged with white, so as to form a more or less well defined double bar on the wing. *Abdomen* white in the middle, sides and flanks with some longitudinal olive streaks along the shafts

of the feathers. *Legs* reddish brown. *Hinder claw* longer than *hallux*, and considerably curved; hind toe and claw shorter than *tibia*. *Tail*: the upper coverts umber brown or olive, under coverts white. *Quills* very similar in markings to those of *Anthus pratensis*, but much longer: two outer quills blackish, their outer web white, with base olive and last quarter tinted with rufous, inner web dark, with tip triangularly pure white, which colour extends a little in a very narrow margin along the inner edge of the quill; two following dark, the outer web, with the whole of the extreme outer margin and very small tip white, inner web with a small triangular white tip, the barbs very long; four next quills dark, outer edge of their outer web very narrowly edged with white along the margin; two inner quills dark umber brown, shorter than the preceding, narrower and cuneate, with paler edges.

Missel thrush, *Merula viscivora*. Scarce. Solitary birds and couples are seen all through the winter. Its harsh cry has even attracted the notice of the peasantry, who have given it the names of Chakker in Flemish, and Chactresse in Walloon. This shy bird does not nestle here.

Fieldfare, *Merula Pilaris*. Feeds principally on the juniper in winter, which imparts a disagreeable bitter flavour to its flesh. Large flocks are seen at irregular intervals through the winter months. It generally appears in November and leaves in March or April.

Common Gold-crest, *Regulus cristatus*. Comes in October; seen in small families all through the winter, disappearing at intervals. Very common, and remarkably fearless of man. Feeds on minute insects, such as *Lachnus Pini*, *punctatus*, *fasciatus* &c., *Coccinella dispar*, *Pollenia rudis*, and some others which hibernate, as these latter do, under the bark or between the leaves of the firs. This bird has not yet been ascertained to nestle in Belgium, but having been seen all the year round in some localities, would lead to the supposition of its doing so. In the neighbouring department of the Moselle it builds every year.

Cole titmouse, *Parus ater*. An irregular winter visitant, from August until spring. Haunts fir-plantations, and lives in small families.

JULIAN DEBY.

Lacken, April 1, 1845.

(To be continued).

Occurrence of Rare Birds near Exeter, in the Winter of 1844-5.

By W. R. SCOTT, M.D.

The severe season which has this year been experienced in Devonshire, has brought us several birds which are only very occasional visitors. I forward you a list of those I have met with, and which I hope will not be without some interest to the readers of 'The Zoologist.' Several flocks of wild fowl made their appearance upon the coast, and on the river Exe, during the late severe weather; but no sooner are such visitors announced, than almost as many shooters are off in pursuit of them, and scarcely have the birds taken up their abode amongst us, before they are driven away by the constant persecution which they suffer. This also renders the more shy species so very wild, that it is only by considerable skill and long vigils that they can be approached.

A gentleman, who has long been a sportsman on the Devon coast, informs me that a considerable change has taken place within his remembrance, in the kinds of birds that annually visit us. Formerly, the golden eye came in considerable flocks every winter; but now they are visible in comparatively small numbers: while the goosander, which formerly was seen only in limited numbers, is now numerous. During the frost in December last, a flock came into the bay at Exmouth, one of which, a young male, I procured. Their wildness made it very difficult to get any. During the same month, three eider ducks were shot, and as far as I have been able to learn, these were the only ones that were seen. They must be only occasional visitors, as I cannot hear of any having been killed for some time past on our coast. Two of these birds came into my possession. They were both young birds, and had not assumed that fine plumage which belongs to them in the adult state. One was much the colour which Mr. Yarrell describes as that of the young male. It was dark-coloured, with blotches of white over the back and wings, but chiefly about the lower part of the neck and breast. The other, however, did not so faithfully agree with any of the descriptions contained in Mr. Yarrell's admirable volume. It was in its general colour nearly black, or a dingy brown, with markings of lighter brown running across the feathers, much of the character of those described as belonging to the female; but the general hue was altogether much darker. The weight of each was 5 lbs.; and from the tip of one wing to that of the other, when extended, was three feet.

During the same frost, a fine specimen of the avocet (*Recurvirostra Avocetta*) was shot upon the Warren-sands at Exmouth. It is the only instance I have heard of, since that recorded by Mr. Yarrell, of this elegant and beautiful little bird being killed here.

Last month, a great-crested grebe (*Podiceps cristatus*) was killed on the coast. This bird was in its young plumage. It had not the fine tippet, and had only a few dark feathers here and there in this part, instead of the chesnut colour seen in the adult bird. I opened the stomach, and found it to contain a mass of a beautiful green colour, which appeared to be some vegetable in a state of maceration. There were several feathers of the bird mixed with the contents of the stomach; some of them were of a dark colour, and appeared to have been taken from the sides or shoulders of the bird, but they were chiefly white, like the feathers of the under surface of the body.

A specimen of the great grey shrike (*Lanius excubitor*) was shot near this city in the early part of this year: also one of the haw-finch (*Loxia coccothraustes*), and one of the large spotted woodpecker (*Picus major*): none of these birds are common here.

During the winter of 1843, the ciril bunting was very abundant in this neighbourhood; I procured several specimens of it, and might have obtained more had it been desired: but during the winter of 1844, I have been unable to fall in with a single bird; though the localities where they were seen the year previous were all visited several times in the hope of meeting with them. I am also informed that they were seen in considerable numbers in the neighbourhood of Taunton, during the winter of 1843.

W. R. SCOTT.

Deaf and Dumb Institution,
St. Leonard's, Exeter, May, 1845.

Partial Migration of Birds. By EDWARD NEWMAN.

IN that portion of the Introduction to Bewick's Birds which treats of migration, we find the following truthful passage. "Most birds are, in some measure, birds of passage, although they do not migrate to places remote from their former habitations. At particular times of the year most birds remove from one country to another, or from the more inland districts towards the shore." I believe no paragraph was ever written more advisedly than this, and I have met with none that opens so wide a field of observation. It has often struck me as

remarkable that so few observations have been made with a view of illustrating what may be called the *partial migration* of birds. Fifty years have elapsed since the quoted passage was originally penned ; and we have made little or no progress in ascertaining the period, the manner, or the cause of these partial migrations. We might select the goldfinch as an example of a partial migrant. On looking over Mr. Yarrell's work, I find no allusion made to the subject ; in fact, this bird is treated by Mr. Yarrell and other ornithologists as an undoubted resident. Yet in Herefordshire the goldfinch arrives with the swallow, and so abundantly, that no garden or orchard is without its supply. In autumn, the young are almost innumerable : young and old collect in large flocks, frequenting road-sides, gardens, orchards, woods and fields, particularly places where thistles have seeded. These flocks move from place to place, still never leaving the neighbourhood till October ; they then depart : a few birds linger about till November, and then all are gone. In the months of December, January and February, a single goldfinch cannot be found : you may search the woods, the hills, the meadows ; you have no better chance of finding goldfinches than swallows. It is said that goldfinches resort to our gardens to breed ; so do martins resort to our houses to breed : but it were a most illogical conclusion to assert that when the process of incubation was over, and during the remainder of the year, goldfinches and martins might be found in the woods and on the heaths.

'The Zoologist' has widely disseminated a taste for the observation of facts. This taste is rapidly increasing ; and let me recommend to my readers the great advantage of perseverance and accuracy. There is no part of the history of birds involved in such mystery as their migrations : there is none to which such attention has been given. A few ornithologists furnish bright exceptions to the rule, but generally speaking, naturalists are content with the fact, that the swallow, the cuckoo, and a few warblers, arrive in the spring and depart in the autumn. I would suggest to my readers to give faithful records of all arrivals and departures in their respective neighbourhoods : to pay the most rigid attention to accuracy : and in those instances in which they might perhaps be imperfectly acquainted with a species, to omit all mention of it, rather than introduce any error into their communications : I doubt not that the aggregate of facts thus collected will thoroughly establish the views expressed in the passage I have cited from Bewick's Introduction. I have no doubt we shall find that most birds migrate at fixed periods of the year, although I am prepared

to find that many migrations are partial as to number of individuals migrating, and limited as regards the extent of country traversed. The goldfinches, which leave Herefordshire in the autumn, probably never cross the channel: they may travel fifty or a hundred miles eastward or westward, northward or southward, but one fact only appears—they depart, and we know not whither. By such careful records as those which I suggest, we should find that at Garstang or at Devonport, or some far off locality, goldfinches arrive in October; observations at intermediate stations would prove their passage, and a series of such observations, recorded at the moment, would trace the course of each species, and bring to light a series of travels of which at present we are profoundly ignorant.

The paper now in the course of publication, from the pen of M. Julian Deby, shows that our continental neighbours have entered on the task more philosophically than ourselves. I could wish M. Deby's remarks were extended to a greater length, for they are full of interest, and exhibit birds as migratory which we have always supposed constant residents. I sincerely hope his example will be generally followed, and that my contributors will, by their attention to this interesting line of observation, gain for 'The Zoologist' the reputation of originating and establishing, in this country, a new feature in the delightful science of Ornithology.

EDWARD NEWMAN.

9, Devonshire-street, Bishopsgate,
13th May, 1845.

Description of the Griffon Vulture. By EDWARD NEWMAN.

THE occurrence of a second species of vulture in the British Isles is an event of considerable interest; and, although I am little inclined to regard the appearance or capture of solitary examples of American or European birds, within the limits of this kingdom, as at all entitling them to the appellation of British, yet it is essentially the province of 'The Zoologist' faithfully to chronicle such facts, and leave future historians to use such record as, in their judgment, they may consider best.

With this view I copied, from the lately published Fauna of Cork (Zool. 934), the brief notice of the occurrence of this magnificent bird in the vicinity of Cork, and requested further information on the subject. Mr. Thompson, of Belfast, in reply, referred me to the forthcoming number of the 'Annals and Magazine of Natural His-

tory,' and from this I extract the following particulars, which are substantially the same as those I have already published :—

“Late in the autumn of 1843, Mr. Yarrell favoured me with the information that he had received a letter from Admiral Bowles, written from the south of Ireland, in which this gentleman mentioned having lately seen a living vulture at Castle Martyr, the seat of the Earl of Shannon, and which was said to have been captured in the county of



The Griffon Vulture (*Vultur fulvus*, Gmel. S. N.)

Cork. The attention of Mr. R. Ball being called to the circumstance, he made enquiry of Lord Shannon, who replied that the bird was purchased by his steward for 2s. 6d. from a peasant, who stated that he caught it on the sea-shore in that neighbourhood. Its plumage was in good order. His Lordship politely offered the bird to Mr. Ball for the collection in the Garden of the Zoological Society, Dublin, but before arrangements were completed for its transmission, it died. The specimen was, by the direction of Lord

Shannon, carefully preserved and stuffed, and placed at the disposal of Mr. Ball, who has added it to the collection in Trinity College, Dublin. It is in adult plumage.”—Ann. Nat. Hist. xv. 308.

Thinking that a figure and description of such a *rara avis* would be acceptable to my subscribers, I pencilled the sketch introduced on the preceding page from the splendid living specimen of the same species now in possession of the Zoological Society, and have gleaned the particulars which follow from Temminck’s admirable ‘Manual of Ornithology,’ and other works of authority.

Vultures, generally, are led by their depraved appetite to rid the earth of the putrifying flesh of animals which have been left on the surface of the ground, and by thus removing offensive matter, they render signal service to living beings. They are cowardly creatures, and their ignoble and disgusting figure supplies the naturalist with many characters whereby he can distinguish them from the more noble birds of prey, which possess the power of capturing, either by strength or cunning, the living animals on which they feed. Their legs, toes and claws, are without that formidable structure which in the birds of prey supply the means of attacking and of carrying away their victims: their food, therefore, is consumed in the places where it is found. In vultures the head and neck are either naked or furnished with short down, the head always appearing small in comparison with the size of the body, and the neck is generally long and slender. Their flight is not rapid, but often at a great elevation, and whether ascending or descending almost invariably in circles. Their sight is most piercing, and their power of smell remarkably acute. On the ground their gait is particularly awkward, and their walk heavy. They nestle in the most inaccessible rocks, and disgorge before their young ones the disgusting food with which they have loaded their capacious stomachs. They moult but once in the year. The sexes are scarcely distinguishable, except by size,—the males, as in birds of prey generally, being invariably smaller than the females. In the plumage of young birds, the colour is often distributed in numerous spots, while in adults it is either uniform or in large masses. Vultures are rarely known to attack living animals; and, when a solitary vulture has left its companions, the most timid and mean of animals will put it to flight.

The *Griffon Vulture* partakes, in every respect, of the characters of its tribe. It is very common throughout Africa and Gibraltar; it also inhabits Turkey, the islands of the Grecian Archipelago, Silesia, the Tyrol, the mountainous districts of the north of Europe, the Alps,

and the Pyrenees. I believe, however, that north of Gibraltar it is only a summer visitant. Like its congeners, it feeds on the bodies of dead animals, and, in extreme hunger, on garbage and filth thrown into the streets. Its eggs are of a dirty white colour, marked with a few pale red blotches.

The head and upper parts of the neck are covered with a short white down; the lower part of the neck is surrounded with long slender white feathers, which appear to stand out almost perpendicularly from the skin and form a kind of ruff; on the breast is a considerable space bare of feathers and covered with short down, generally whitish, but often approaching to brown; the primary feathers of the wing, and also the feathers of the tail, are dark brown, nearly black, but, with these exceptions, all the feathers of the back, breast and wings are brown, shaded at the edges and tips to fulvous grey. The beak is very strong, hooked, and of a bluish lead colour; the cere dark, and all the region surrounding the eyes approaches to black; the eyes are hazel, and the feet brown. The length from the tip of the beak to the extremity of the tail is full four feet, and the expansion of the wings not less than eight feet.

The young birds differ in colour considerably from the adult: the plumage being spotted and the down of the head and neck conspicuously marked with brown. Temminck thinks that in this state it is the '*Vultur Kolbii*' of Latham and the '*Vautour chasse-fiente*' of Vaillant.

The genus *Vultur* has been the subject of much sub-division. Mr. G. R. Gray, in his '*Genera of Birds*,' make them into four sub-families—*Gypaëtinae*, *Cathartinae*, *Vulturinae*, and *Racaminae*. In the same author's '*List of the Specimens of Birds in the British Museum*,' three of these divisions are elevated to the rank of families, under the names, *Gypaëtidae*, *Cathartidae* and *Vulturidae*; the latter being again divided into the sub-families *Vulturinae* and *Gypohiëracinae*. The subject of this memoir is the *Gyps fulvus* of both these lists, and the *Gyps vulgaris* of Savigny. It is well figured in Gould's '*Birds of Europe*,' but that author has added nothing to its history.

EDWARD NEWMAN.

9, Devonshire-street, Bishopsgate,
13th May, 1845.

Description of the new British Quail. By EDWARD NEWMAN.

It will be recollected by my ornithological readers that I recorded in the March number of the 'Zoologist' (Zool. 872), the occurrence of a diminutive quail in Oxfordshire. In that notice all the ascertained particulars of the bird were given, together with a description of continental specimens of *Hemipodius trachydromus*. Since the publication of those observations, to which the reader is particularly referred, Mr. Goatley has kindly furnished me with a photograph drawing of the specimen, and also with the loan of the bird itself; thus affording ornithologists in London an opportunity of seeing this truly



Andalusian Quail (*Hemipodius trachydromus*?)

interesting addition to the British Fauna; for although the Vulture described in the paper immediately preceding this can scarcely be recognized as a *British* bird, the present species, thoroughly established, as it appears to have been, in the barley-fields of Oxfordshire, must henceforth be admitted as such without doubt or hesitation.

In compliance with Mr. Goatley's request, I have drawn up such a description of the specimen as I trust will serve to distinguish the present from any other species inhabiting Britain. I felt very reluctant to undertake the task, fearing my inability to describe it with sufficient accuracy: and I must beg that professed ornithologists will make every allowance for one whose attention has been principally occupied with other branches of Natural History. I may also observe that the particulars of admeasurement, &c., prior to stuffing, have been kindly supplied by Mr. Goatley; and also that the bird

differs most materially from the previously published description (Zool. 872) compiled from Temminck and Gould, and especially from the beautiful figures of *H. trachydromus* in the 'Birds of Europe;' indeed, the differences are so great as to induce a doubt as to the identity of the species. A much greater resemblance is observable between the specimen before me and one from India, preserved in the collection of the British Museum, under the name of *Turnix maculosa*, and of which the following synonyms appear in the list of Gallinæ in the British Museum, p. 41: "The Crescent Quail. *Turnix maculosa*, *Steph. Hemipodius maculosus*, *Temm. Pig. et Gall.* iii. 6, 31. *T. maculatus*, *Viell. Gall. Ois. t.* 217."

The beak has the upper mandible brown, inclining to lead colour; the lower mandible is of the same colour at the tip, but nearly yellow towards the base; the gape in the living bird is yellow. The slender elongate form of the beak is totally different from that of the common quail. The irides are pale yellow; the forehead and crown of the head are dark brown, each feather having a slender pale margin; the feathers on the back of the neck are spotted with dark brown, pale testaceous, and bright rust colour; those on the back and rump are ferruginous brown, with irregular transverse bands of dark brown or black, and a broad irregular band of pale testaceous; those covering the wings have the same colours, but the black bands in each are consolidated into one conspicuous blackish patch; the throat is pale ferruginous, each feather being tipped with dark brown; there is a broad central line down the breast of the same colour, but on each side of this line the feathers are testaceous, each having a transverse black patch; the lower breast and belly are testaceous, and the feathers about the vent of nearly the same colour, but rather brighter; the wing-feathers are dusky brown, with pale mottled margins: the legs and feet of the living bird were pale yellow.

The total length of the bird, when laid on its back before skinning, was six and a half inches: the expansion of the wings from tip to tip, twelve inches; the length of each wing, from the flexure to the end, three and a half inches. The beak, from the tip to the gape, six-tenths of an inch; from the tip to the commencement of feathers on the forehead, four-tenths of an inch. Length of the tarsus, one inch; of the inner toe, five-tenths of an inch; of the middle toe, eight-tenths: of the outer toe, five and a half tenths.

EDWARD NEWMAN.

Remarks on the Butterflies of Switzerland.

By W. C. HEWITSON, Esq.

IT was my good fortune to enjoy, during the last summer, a treat which had for many years been the object of my wishes—an entomological excursion amongst the Swiss Alps.

The entomologist alone can know, when looking over the captures of the past summer, how vividly they recall to his recollection each beautiful spot he has visited in pursuit of them; it needs not, however, any such assistance to the memory to paint, in bright colours, the recollections of the scenes which await the wanderer in that glorious country.

I went to Switzerland with Mr. Brown's translation of Meisner as my guide, and found it so useful that I fancy a few additional remarks cannot fail to be acceptable to any one bent on the same delightful errand as myself.

With regard to locality, Meisner's remarks are very accurate,—not so much so in relation to time of appearance; but this is always more or less under the influence of seasons, and the inaccuracy may apply only to the past summer: for as with us the spring had been warm and dry, and the butterflies were consequently early in their appearance, so much so, that had I waited the time indicated in these observations to visit some of the localities pointed out, I should have been much too late to take the insects in perfection.

It is, however, impossible to fix a date for the appearance of either plants or insects in a country like Switzerland, unless they are exclusively the production of some given elevation; for, when you reach the mountain valleys, you meet with the same flowers and butterflies in their first bloom which you have taken five or six weeks before at a lower level. Thus, I took our beautiful orange-tip on the 2nd of June, a little below the Mer de Glace at Grindenwald, and the Apollo on the 39th of July in the vale of Chamouni.

Professor Meisner speaks of the Vallais, which is the hottest part of Switzerland, as the district most rich in entomological productions. I found it, however, quite the reverse; but I might have been too late, considering the earliness of the season; and though I hunted diligently some of the localities mentioned by him as abounding in particular species, I did so without success: indeed, throughout Switzerland, the valleys and low grounds are very unproductive of butterflies, which always increase in number as you ascend the mountains, and this to an elevation of the first 2,000 or 3,000 feet,—not in

those species only whose habitat is the mountain's top, but in most of those also which in England we should seek for in low or even marshy districts—the swallow-tails, the fritillaries, and the coppers. For a thousand feet higher most of them are not infrequent, gradually giving place to the true dingy inhabitants of this more cloudy climate—the *Erebias* or browns—many of which are abundant at an elevation of from five to six thousand feet; with the highest fliers of which I was pleased to notice two of our commonest butterflies, the tortoiseshell and large garden white.

Two things struck me as unusual in my capture of butterflies in Switzerland; the great number of cripples, with wings imperfectly unfolded, which I met with in the early summer, and the numbers of lice or *Acari* with which many of the mountain *Erebias* were infested. This may not be unusual, but I never noticed it at home.

Before entering into particulars, I may state that I captured, or might have done so, ninety-three species in the two months that I was there.

The *Parnassius Apollo*, which I first took on the Righi on the 13th of June, was quite fresh in the vale of Chamouni on the 30th of July. It is common on most of the mountain sides which rise from the elevated valleys; usually ranging at a lower level, although met with at an elevation of five thousand feet on the mountains near the glacier above the Baths of Loèche, whither I had gone to seek for *P. Phœbus*, which usually flies higher than *Apollo*, and is more difficult to take. The place which I have just mentioned—a piece of beautiful green turf upon the margin of a glacier—was the only locality where I saw this species, but was told by my guide, when it was too late to profit by his information—and I had already passed the mountain—that it is abundant on one side of the Col de Balme. I took the *P. Phœbus* in great perfection on the 22nd of July, and on the same spot worn-out specimens of *Apollo* and *Mnemosyne*.

In a collection of Swiss insects, belonging to Mons. Le Diacre Hiss, at Thun, is a specimen of *Phœbus*, in which the ocelli on the under wing are quite black, a variety, which has sometimes been imitated with black paint. *P. Phœbus* is known in Switzerland by the name of *Petit Apollo*.

I was too late for fresh specimens of the white, with the exception of *D. Daplidice*, which was plentiful in the Vallais on the 23rd of July. I saw *P. Callidice* on the Flegere in Chamouni on the 29th of July, but sadly worn.

Colias Hyale and *Edusa* are everywhere in the valleys, but

seldom out of the cultivated districts. *C. Phiconome* is local, but is very abundant near a little lake at the base of the Blunulis Alp, near Kandersteg, the locality mentioned by Meisner, and also in the meadows between the baths of Loeche and the foot of the Gemmi. They fly, as Meisner says, in the early part of the day with great rapidity; so great, indeed, is their speed of flight, and mostly straight onwards in an undeviating line, that I soon relinquished the hope of overtaking them on so rough a course,—and, remaining stationary till they crossed me, took as many as I chose, for they were flying in hundreds near the little lake I have mentioned.

During the whole of my tour I saw only one single hairstreak (*Thecla Betulæ*).

Of the coppers, *L. Virgaureæ* was in abundance and great beauty in several of the elevated valleys, and also on the mountain sides to an elevation of three thousand feet. It is a beautiful sight, indeed, to see this gem of a butterfly under a brilliant sunshine.

Of the blues, I did not see so many as I expected. Several species, which Meisner mentions as occurring in the Vallais, were nowhere to be found. *P. Eumedon* I saw but once near the Mer de Glace, at Grindenwald. *P. Arion* was on several of the mountain sides, but it never looks as if in perfection. The lovely *P. Damon* was in numbers by the side of the road which leads from the baths at Loeche to Leuk in the Vallais; the females were not upon the wing, but I got several by brushing the grass with my net.

The white admirable, *L. Sibylla* (*L. Camilla* of English authors), first made its appearance June 29th, by the side of a road which leads from Interlachen to the Lake of Thun; it was afterwards seen on the woody mountain slopes above Leuk, and also above Brieg, by the side of the Simplon road. It is apparently scarce.

The Fritillaries, *Argynnis Paphia*, *Aglaia*, *Adippe* and *Niobe*, were in most places in about equal numbers; the beautiful *Amathusia* was confined to the neighbourhood of the little lake at the head of the valley of Oeschinen, near Kandersteg, the richest as well as one of the most beautiful and sublime scenes in Switzerland. I took it there on the 14th of July, and, on the same day, a single specimen of *A. Pales*, which usually flies much higher on the mountains, and was afterwards seen, in passing the Gemmi, at an elevation of six thousand feet.

A. Ino was abundant in the meadows round the baths at Loeche. The very beautiful *Melitæa didyma* was taken at Loeche on the 21st

of July, and afterwards on the high ground between there and Sierre in the Vallais.

It is to the browns—which abound on all the Alpine heights, both in species and in numbers—that Switzerland owes its chief interest to the lepidopterist.

The only locality where I met with *Erebia Cassiope* was near the hospice of the Simplon. *Melampus*, which first made its appearance on the 12th of July, in the valley of Oeschinen, near Kandersteg, was afterwards plentiful there, and in great numbers in the meadows near the baths of Loeche on the 20th. *E. Ceme* and *Ceto* were most abundant on the highest part of the pass of the Gemmi, sitting upon the bare arid slopes and rocks over which the track passes, although not uncommon on many of the high Alps. *E. Mnestra* was confined to the top of the Flegere, above the vale of Chamouni, which abounded in butterflies. *E. Stygne* and *Manto* I saw nowhere, except in the valley of Oeschinen. *Ligea* was in great beauty in the woodland walks about Interlachen; its first appearance was on the 29th of June. *E. Euryale*, which may, I fancy, be only an Alpine variety of *Ligea*, was abundant about half-way up the ascent of the Simplon. *E. Manto* was on the highest part of the Wengern Alp on the 21st of June, and still in perfection in crossing the Gemmi on the 15th of July.

I was too late to obtain fine specimens of the larger browns, which form the genus *Satyrus*, and which are chiefly to be met with on the arid rocky slopes on both sides of the Vallais. The *S. Circe*, when on the wing in the open fields, is—unlike most of this slow-flying tribe—very quick of flight, and difficult to come near.

Afraid lest I should extend too much, notes which are of interest to but few, I have only mentioned some of the more interesting species.

As far as I can judge, from so short an experience, the best collecting districts are those mountain valleys, two or three thousand feet above the sea, where most of the lower-flying species abound, and from which the higher Alps are easy of access: such are the valleys of Chamouni, Kandersteg, and Loeche. I never saw so many butterflies in my life as in a ride from the baths of Loeche to Leuk in the Vallais; and am anxiously anticipating another summer's enjoyment amongst them.

WILLIAM C. HEWITSON.

Observations on the Species and Varieties of Lozotænia.

By WILLIAM BENTLEY, Esq.

Genus LOZOTÆNIA, *Stephens.**Tortrix*, Hubner, Haworth, Fischer.

IN offering a few remarks on the species and varieties of this difficult group of insects, it is essential to state that some of the species take a wide range of variation in size, colour, and in markings. I attribute much of this to the well known fact, that many of the species are general feeders, the larvæ feeding indiscriminately upon most of our trees and shrubs: the species, too, are generally widely dispersed. Locality, also, may have some influence in causing such diversity in size, colours and markings. Some of the varieties, and even the sexes, were formerly considered distinct species by foreign authors, and figured as such by Hubner; but time and subsequent observations enable us, in some degree, to correct such errors.

Sp. 1. LOZOTÆNIA FORSTERANA, *Stephens*, *Il. Brit. Ent. Haust.* iv. 70.*Tortrix Forsterana*, Haworth, 421. *T. adjunctana*, Fischer, Pl. ix. fig. 1.

Measures 9 lines to 1 inch 2 lines. Anterior wings broad, of a cinereous tinge, slightly reticulated, with three dark brown spots, two upon the costa, the other on the inner margin, forming a triangle: this species varies but little, except in size; common about gardens and hedges in June. It is known on the continent by the name of *adjunctana*.

Sp. 2. LOZOTÆNIA SORBIANA.

Tortrix Sorbiana, Hubner, Pl. xviii. fig. 113. *T. Avellana*, Haworth, 421.

Measures 10 lines to 1 inch 3 lines. Anterior wings grey, with a yellowish tinge, with an oblique dusky band at the base, and a second a little behind the middle, which is often interrupted; between this second band and the tip is a dark patch on the costa: posterior wings dusky, with yellowish cilia. A variable insect; but all the varieties may be known by the shortness of their palpi.

Sp. 3. LOZOTÆNIA HEPARANA, *Steph.* l. c. 71.*Tortrix Carpiniana*, Hubner, Pl. xviii. fig. 116. *T. Carpiniana*, Haworth, 422.

Measures 7 to 11 lines. Variable; in some examples the wings are testaceous brown, reticulated with darker brown; in others they

are dull red. Some specimens are ochreous, with numerous fine transverse lines; others, again, are cinereous; some are strongly reticulated, others not so; these last have been named *Grossulariana*; all these varieties have a brown fascia at the base, a second oblique one in the middle, dentate within, and a patch of the same colour towards the apex of the costa. I have seen a variety testaceous brown, finely reticulated, with three spots on the costa; these spots, with the head and thorax, being of a bright cinnamon colour, and giving the insect a beautiful appearance. This variety was taken by Mr. Bedell, I believe, near London; the species is common about lanes and gardens in July. The palpi of this species are long and stout.

Sp. 4. *LOZOTÆNIA CINNAMOMEANA*, *Steph.* l. c. p. 71.

Tortrix cinnamomeana, Treitschke, *Schmet. von Eur.* vii. 61. Fischer, Pl. ix. fig. 2.

Measures $7\frac{1}{2}$ lines. This rare species, like its congeners, varies much. I have but two specimens, which are very dissimilar in colour, one extreme pale cinnamon, the other very dark cinnamon, with the usual fascia at the base, the medial oblique one and the spot on the costa; evidently a rare species. The pale variety I took near Ringwood, Hants; the other I obtained from the cabinet of Mr. Stone. The white palpi will at once distinguish this species from its congeners.

Sp. 5. *LOZOTÆNIA CERASANA*, *Steph.* l. c. 72.

Tortrix Cerasana, Hubner, Pl. xix. fig. 119. Haworth, 423. *T. Ribeana*, Hubner, Pl. xviii. fig. 114. Haworth, 423. *L. Ribeana*, *Steph.* l. c. 72.

Measures 6 lines to 1 inch. Extremely variable. Anterior wings, usually testaceous, with an obscure bar at the base, a medial oblique one, often interrupted by an irregular dusky blotch, the costa, with a small spot near the apex. Some have the basal half of the anterior wings dark fuscous, with the posterior margin testaceous; others are all yellow, with transverse dark lines; others, again, are all dark fuscous, with their markings obscure: some are plain testaceous yellow, with the usual fascia, and spots darker. This variety is figured by Hubner by the name of *Ribeana*, who appears to have been followed by all subsequent writers, both Foreign* and British. I have for many years

* I have examined Foreign specimens of these two supposed species, received from the Continent by the British Museum, where every facility is afforded for the study of Entomology by the present officers of that National Establishment.

past considered all these varieties as constituting but one inconstant species; but in July, 1843, I had abundant proof of the fact, by taking them *in copulâ*. The caterpillar feeds on the whitethorn, hazel, birch, gooseberry, currant, and all garden shrubs. Some of these varieties resemble those of *L. heparana*, both in colour and markings, but may be distinguished by the palpi, which are shorter.

Sp. 6. LOZOTÆNIA CORYLANA, *Steph.* l. c. 73.

Pyrallis Corylana, Fabr. iii. b. 260. *Tortrix Corylana*, Haworth, 422.
T. textana, Hubner, Pl. xviii. fig. 115.

Measures 6 lines to 1 inch. Anterior wings testaceous-yellow, beautifully chequered with cinnamon colour: usually with three transverse lines, one near the base, and two oblique ones in the middle; some examples have a fourth line on the costa, near the apex; in others, the transverse lines are entirely wanting: posterior wings flavescent. Distinguished from the last species by the palpi, which are longer, and of paler colour in the males.

Found in woods towards the end of July to the middle of August.

Sp. 7. LOZOTÆNIA AMERIANA.

Phalæna Ameriana, Linn. *Tortrix Pyrastrana*, Hubner, Pl. xx. fig. 124, male. *T. congenerana*, Hubner, Pl. xlvii. fig. 295, female. *T. Gerningana*, Haworth, 428, and *T. oporana*, Haworth, 427, *Lozotænia oporana*, and *L. Rosana*, *Steph.* l. c. 75. *L. fulvana*, *Steph.* Cat. No. 6865. *T. Ameriana*, Fischer, Pl. xliii. fig. 2.

Measures 7 lines to 1 inch 3 lines. Anterior wings of the male rusty brown, with an elongate dark brown spot on the inner margin, near the base; a second oblique spot in the middle of the wing; a third abbreviated spot near the posterior margin; the females are usually ferruginous, reticulated with brown; the wings strongly caudate, producing a slight hook at the apex: posterior wings brown, with the apex bright orange; in some examples all the wings are deep smoky brown or black; intermediate varieties are common, and well known to most collectors. Hubner has figured the male under the name of *Tortrix Pyrastrana*, and the female under that of *T. congenerana*. The palpi of this species are short.

Common in gardens in July.

Sp. 8. LOZOTÆNIA ROBORANA, *Steph.* l. c. 77.

Tortrix Roborana, Hubner, Pl. xx., fig. 126, male. *T. Cratægana*, Hubner, Pl. xvii. fig. 107, female. *T. Branderiana*, Haworth, 424.

Measures 9 lines to 1 inch. Anterior wings cinereous, tinged with testaceous, and having a distinct brown spot on the inner margin, near the base, and a large irregular patch of the same colour in the centre of the wing, extending to the inner margin, but remote from the costa; on the costa near the apex is a third patch, from which a narrow streak arises, and terminates near the middle of the posterior margin; posterior wings fuscous. The foregoing description is taken from a male. The wings of the female are caudate, producing a hook at the apex; the spots on the wings are similar to those of the male, except the patch in the centre of the wing, which is found in some examples extending to the costa, and forming an oblique fascia: posterior wings fuscous, with the apex luteous. Hubner has figured a variety of this species, under the name of *Tortrix Cratægana*, and Haworth has described another under that of *T. Branderiana*; the latter is a light variety, with obscure markings: I have a fine intermediate variety before me which belongs to the rich collection of Mr. Henry Doubleday, of Epping; its anterior wings are testaceous, with a small spot on the inner margin near the base; there is an oblique fascia of rich brown in the middle much dilated towards the anal angle, and a patch of the same colour at the apex extending obliquely from the costa to the middle of the posterior margin.

This is, evidently, a rare species. I have taken it at Darenth in July; also, at Brockenhurst, in Hampshire.

Sp. 9. LOZOTÆNIA XYLOSTEANA, *Steph.* l. c. 76.

Phalena Tortrix Xylosteana, Linn. Faun. Suec. 1313. *Tortrix Xylosteana*, Haworth, 428. *T. Xylosteana*, Fischer, Pl. xlv. *T. Characterana*, Hubner, Pl. xx. fig. 125.

Measures 7 to 11 lines. Varies much in size and in the intensity of its markings. Anterior wings usually testaceous and glossy, with a brown spot on the inner margin near the base, extending towards the middle of the wing; an oblique fascia extending from the middle of the costa to the anal angle, and a spot on the costa near the apex. In some examples this spot is united to the medial fascia, leaving near the middle of the costa a distinct testaceous spot: posterior wings fuscous: the cilia in the male are usually tinged with yellow.

Common in woods and lanes in July.

Sp. 10. LOZOTÆNIA LÆVIGANA, *Steph.* l. c. 74.

L. nebulana, *Steph.* l. c. *Tortrix lævigana*, *Wien. Verz.* *T. Oxyacanthana*, *Hubner*, Pl. xviii. fig. 117. *T. Oxyacanthana*, *Haworth*, 425. *T. Rosana* and *T. fuscana*, 424. *T. lævigana*, *Fischer*, Pl. xi. fig. 2.

Measures 7 to 9 lines. Anterior wings testaceous brown, reticulated with darker brown; an oblique fascia in the middle, and a small spot near the apex of the costa; posterior wings brown, with the apex orange. A variable species; some examples are bright testaceous, with all their markings obscure; others are all dark brown, the posterior wings without the orange tip. This variety was described by Mr. Haworth as *Rosana*, and by Mr. Stephens as *Nebulana*. I have bred both these varieties and many others from a similar looking larva: they are general feeders, feeding on the white-thorn, blackthorn, bramble, fruit-trees, rose-bushes, and most garden shrubs. I once found them in abundance on the *Myrica Gale*, from which I bred many varieties. In the Isle of Thanet, where the hedge rows are generally formed of dwarf or stunted elms, these larvæ make great havock. The hedge-rows, sometimes, have the appearance of being blighted by the sea-breeze; but, when examined, a living larva of this species will be found rolled up in almost every leaf; the imago appears in July, and is very common.

Sp. 11. LOZOTÆNIA SUBOCELLANA, *Steph.* l. c. 75.

[“Sp. 12. SUBOCELLANA. *Alis anticis plumbeo-fuscis, atro subreticulatis, interstitiis quasi obsolete ocellatis, posticis fuscescentibus.* (Exp. Alar. 10 lin.)

Lo. subocellana, *Steph. Catal.* ii. 170, No. 6861.

“Anterior wings of a lead-coloured brown, somewhat reticulated with interrupted deep black lines, the interstices as if faintly ocellated; near the base is a faint black streak, and an oblique more distinct one in the middle: posterior wings brownish.

“I have seen two specimens only of this distinct species, which were taken either in Devonshire or Cornwall.”

I have taken the liberty of introducing Mr. Stephens' description verbatim, as Mr. Bentley, not being acquainted with the species, had given only its name and a reference to Mr. Stephens' work.—Ed.]

Sp. 12. LOZOTÆNIA ACERANA, *Steph.* l. c. 79.*Tortrix Acerana*, Haworth, 425.

Measures 7 to 10 lines. Anterior wings pale fuscous, with a transverse streak at the base, an oblique fascia in the middle, dilated on the inner margin; some examples are slightly reticulated: posterior wings fuscous; the cilia on all the wings pale and very glossy.

Not common. I generally find this species about poplar trees the end of June.

Sp. 13. LOZOTÆNIA DISSIMILANA, *Bentley*.

Measures 1 inch. Anterior wings reddish brown, some reticulated with interrupted black lines; a small pale spot on the costa, a little beyond the middle: posterior wings deep fuscous.

Found in the New Forest, Hants. I obtained this distinct species from the cabinet of Mr. Stone.

Sp. 14. LOZOTÆNIA TRIFASCIANA, *Steph.* l. c. 79.*Pyralis trifasciana*, *Fabr.* iii. b. 248.

Measures 7 to 9 lines. Anterior wings cinereous, with an obscure band at the base; an oblique brown fascia in the middle, dilated towards the inner margin; a small spot on the costa, and a few scattered dots on the posterior margin; posterior wings fuscous, with light cilia.

Found in woods in June.

Sp. 15. LOZOTÆNIA GROTIANA, *Steph.* l. c. 78.*Pyralis Grotiana*, *Fabr.* iii. b. 272. *Tortrix flavana*, *Hubner*, Pl. xxi. fig. 133.

Measures 7 to 8 lines. Anterior wings golden yellow, finely streaked with rust-coloured lines, with a broad oblique fascia of the same colour in the middle, extending to the anal angle; also, a spot near the apex of the costa. Ochreana, and flavana of *Hubner*, are only varieties of this species.

This pretty insect is rare near London. I have taken it in Epping forest, I think, in the month of June.

Sp. 16. LOZOTÆNIA COSTANA, *Steph.* l. c. 78.

Pyralis costana, Fabr. iii. b. 252. *Tortrix Gnomana*, Hubner, Pl. xxi. fig. 131. *T. Gnomana*, Fischer, Pl. x. fig. 1.

Measures 7 to 12 lines. Anterior wings pale yellow, with two rather large brown spots on the costa: the first a little before the middle, the other near the apex; some examples have an oblique fascia, while others are beautifully streaked and spotted with rich brown.

Found in gardens the end of June. Continental writers prefer the modern name of *Gnomana* for this species, which is certainly not so good a one as the old Fabrician name, *costana*.

Sp. 17. LOZOTÆNIA OBLIQUANA, *Steph.* l. c. 77.

Pyralis obliquana, Fabr. iii. b. 257. *Tortrix obliquana*, Haworth, 421.

Measures 8 lines. Anterior wings yellow, with a rust-coloured oblique fascia arising near the base of the costa, and extending to the anal angle; also, a patch of the same colour near the apex of the wing.

Very rare; formerly taken at Coombe Wood, but I have not seen any recent specimens.

Sp. 18. LOZOTÆNIA MODEERIANA, *Steph.* l. c. 78.

Phalæna Tortrix Modeeriana, Linn. S. N. ii. 880. *Tortrix Modeeriana*, Haworth, 423.

Measures 8 to 9 lines. Anterior wings straw colour, with a slight fulvous spot at the base, an oblique fascia in the middle, interrupted towards the costa, and a spot of the same colour near the apex of the costa, from which arises a fulvous line extending towards the anal angle: posterior wings pale.

Found in Kent in July.

Sp. 19. LOZOTÆNIA BIUSTULANA, *Steph.* l. c. 78.

Measures 8 to 9 lines. Anterior wings yellow, with a brown streak at the base, a large blotch on the inner margin, and a small spot of the same colour near the apex of the costa: posterior wings pale.

Very rare; the male of this species is much darker than the female.

Sp. 20. LOZOTÆNIA CROCEANA.

Tortrix croceana, Hubner, Pl. xix. fig. 120. Haworth, 424.

Measures 6 to 8 lines. Anterior wings narrow, testaceous red, with a slender oblique fascia in the middle of the wing, and two or

three small dark spots on the inner margin : posterior wings brown, cilia yellowish : the above description is taken from a male specimen ; the female, which appears rare, is of a plain testaceous red, with the extreme costa slightly white.

Found about whitethorn hedges in July.

I have described above all the British species of *Lozotænia* with which I am acquainted. Several closely allied species are common on the continent, which, I have no doubt, may eventually be found in this country. Up to the present time these insects have been much neglected : they are usually called "common oblique bars," and collectors seldom take the trouble to secure them.

The three Linnean species of *Tortrix*, named *Cruciana*, *Schreberiana*, and *Holmiana*, have been described as belonging to the present genus ; but they depart so considerably, in many essential characters, that I thought it best to exclude them.

WILLIAM BENTLEY.

3, Critchell Place, New North Road,
1st May, 1845.

Microscopical Society.

April 23, 1845. John Birkett, Esq. in the chair.

Read, a paper by J. S. Bowerbank, Esq., F.R.S., &c., entitled "Description of a new Genus of Calcareous Sponge."

The subject of this paper was found attached to the stem of a new species of coralline received by the author from Mr. George Dunsterville, surgeon, of Port Elizabeth, Algoa Bay, after whom it has been named. It was found on the beach at Cape Receif, above ten miles from the town. Its description is as follows :—

Dunstervillia. Generic character. Sponge calcareous, outer surface arranged in polygonal plates or compartments. Body composed of simple, straight, angulated canals, radiating from the central axis of the sponge.

D. elegans. Sponge sessile, sacculate, compressed, ventral orifice single, terminal, surrounded by a single or a double fringe of erect, simple, asbestiform spicula. External oscula indistinct. Spicula of the body simple, double-pointed, triradiate.

Although closely approximating to the genus *Grantia* of Dr. Fleming, its structure is so peculiar as to justify the author in his opinion in making it the type of a new family ; and the more so, as, although he is acquainted with no recent analogue, yet there is a

fossil to which it appears to be very closely allied. The fossil alluded to is the *Sphæronites tessellatus*, the outer surface of which presents a tessellated structure closely resembling this sponge. It must, however, be remarked that there exists much doubt as to the real nature of this fossil; but as the external appearance of the plates or compartments in it is precisely like that of the recent sponge, and as certain peculiarities of the internal structure are apparently to be met with in both, and, also, as the microscopical examination of the outer and inner surfaces of the fossil present appearances which strongly favour the idea of its spongy origin, Mr. Bowerbank does not hesitate in referring both to one and the same genus.

A second paper, by the same gentleman, being a "Description of a new genus of Fresh-water Sponge," was also read.

The singular and highly interesting sponge, whose description forms the subject of this paper, was found at Tenby, South Wales, by a poor man who collects fresh-water shells to sell to the visitors. It occurs in a large muddy ditch in the vicinity of Tenby, which, although very near the sea, has no communication with it. To this sponge Mr. Bowerbank gives the name of

Somatispongia; and its generic and specific descriptions are:—Sponge with a central, round or oval coriaceous body, surrounded by three winged, keratose fibres, which spring from its surface.

S. pulchella. Sponge free. Body covered with reticulations, the areas of which are depressed, furnished with two mammæ opposed to each other either in the long or short axes: in the latter case with a deep sinus intervening. Fibre flexible, reticulations polygonal, without interstitial fleshy matter or spicula.

This beautiful little sponge is more or less of an oval form. It rarely exceeds half an inch in length from one extremity of the fibre to the other, and the central body is about four lines in length. The fibres are of a greenish amber colour, the body partaking of the same hue, but much deepened by its greater degree of density. When denuded of its surrounding fibres, the body appears to be divided into numerous nearly equal-sided polygonal areas, which are most frequently five or six-sided; from the angles of these reticulations the fibrous structure springs, preserving the same form of reticulation as that of the parent surface. Its internal structure also presents many interesting peculiarities which were fully detailed in the paper.

May 21, 1845. J. S. Bowerbank, Esq., F.R.S., in the chair.

A paper was read by Mr. J. Quekett, "On the structure of the Flabella of some of the higher forms of Crustacea, with some remarks on their probable use in the function of respiration." The author commenced his paper by describing briefly the different forms of the respiratory apparatus met with in the lower orders of Crustacea, and then entered more at length into the structure of the branchiæ of some of the higher forms, such as the common crabs and lobsters, in the former of which he stated that the proper branchiæ were seven in number on each side, and that each branchia was composed of a septum, on two sides of which were arranged numerous lamellæ or plates of a quadrangular figure; on the upper and outer edge of each lamella was developed a hook or spine; the flabella or sweepers consisted, in most cases, of a horny flat filament, with numerous hairs attached to its edges and to its under surface as well: and on an examination, by the microscope, of these hairs, they were found to be scimeter-shaped; and numerous large hooks and short bristly hairs, all of which were inclined backwards, were developed on their convex edge. And it having been denied by Dr. Milne-Edwards and others, that the use of the flabella was that of causing currents of water to pass through the branchial chamber, Mr. Quekett was induced to believe, from his investigation, that the true use of these organs was that of separating the branchial laminæ one from the other, so that the water might readily penetrate between them, the arrangement of the spines on the hairs, and on the branchial laminæ as well, being such as to produce this movement when the hooks on the hairs came into contact with those on the branchial laminæ.

Mr. Powell exhibited and described a newly-constructed portable microscope. It is contained in a case $8\frac{3}{4}$ inches long, $5\frac{3}{4}$ inches wide, 2 inches deep, possessing rack and fine adjustments to the optical parts; $\frac{1}{2}$ inch of motion to the stage, in rectangular directions, with $\frac{1}{4}$ inch, $\frac{1}{2}$ inch and 1 inch object-glasses, forceps and animalcule-cage: higher powers may be added, as it is sufficiently free from tremor to bear the highest that are made.

A letter was read from Mr. T. Boys, giving a description of his method of mounting objects in Canada balsam, by which he is enabled to avoid air-bubbles. Having provided a small, single-wick oil lamp with a chimney, slips and thin pieces of glass, nippers, a pointed iron wire, in a wooden handle, and some of the clearest Canada balsam, diluted with the best spirits of turpentine to a consistency to allow it to drop readily from the point of the wire; a slip

of glass is to be fixed on the nippers, and a sufficient quantity of Canada balsam is to be taken up on the end of the wire to allow a full drop to be placed on the slide where required. The centre of the slide is then to be rested across the chimney of the lamp, until the balsam begins to spread, when it should be immediately withdrawn. The object is now to be placed on this drop of balsam, and covered with another drop. The slide may now remain for two or three minutes, to allow the balsam to penetrate the object; the thin glass is then to be placed as nearly horizontal as possible upon the balsam covering the object. Now, holding the slide in rather an inclined position at one end by the nippers, place the other end over the centre of the chimney of the lamp, the balsam gradually liquifies and flows to the extreme edge of the thin glass, carrying with the surplus all air-bubbles on that side: the same process is to be repeated with the other end of the slide, after which it is to remain in a horizontal position until nearly cool, when the centre of the upper or thin glass is to be pressed with a small piece of wood, rather pointed. This expels all superfluous balsam, and with it any extraneous matter. Should after this any air-bubbles be generated by the object, they will disappear in a few days.—*J. W.*

Occurrence of Vanessa C-album in Cumberland. I received a letter from my father at Carlisle a short time ago, recording the capture of *Vanessa C-album* on the 10th of April, 1845, by himself, being the first specimen that has been known to have been taken in Cumberland. It may perhaps be interesting to some of the readers of 'The Zoologist,' to hear of its occurrence so far north.—*J. B. Hodgkinson*; 12, *Friday St.*, Preston, May 15, 1845.

Plusia Interrogationis and P. bractea fly by night. Observing an enquiry whether *Plusia Interrogationis* and *bractea* fly by night (Zool. 889), I believe I may safely reply in the affirmative, having taken a specimen of *P. bractea* at 10, P.M., July 12, 1841 (flying round the blossoms of the catchfly, in company with *P. Festucæ*, *Iota* and *Percontationis*), near Falkirk, Stirlingshire; and of *P. Interrogationis* I took one specimen, at Kilmun, Argyllshire, at 9, P.M., July 8, 1843. — *H. T. Stainton*; *Lewisham*, April 1, 1845.

Caterpillar of Acronycta Salicis, (Curtis). In Curtis's 'British Entomology' is a beautiful plate of this rare moth, along "with the caterpillar from which the perfect insect was bred." Some mistake must have occurred, the caterpillar figured being that of *Menyanthidis*; it is afterwards made into a variety of this insect in his Catalogue. I am positive it is not a variety of *Menyanthidis*. My friend, John Thomas, bred a female specimen from a caterpillar I took off a raspberry-bush, and observed no difference in it from that of *Rumicis*. On the 2nd of June, 1844, I captured a beautiful male on the bole of a fir, and at the same time several specimens of *Rumicis*; if a va-

riety at all, it is of the latter insect. — Robert S. Edleston ; Cheetham Hill, near Manchester, April 7, 1845.

Occurrence of Ceropacha octogesima near Cambridge. Last week a pair of this insect came out of chrysalides, one only of which, unfortunately, came to maturity. The chrysalides were found in Madingley woods. — Hamlet Clark ; Cambridge, May 28, 1845.

Capture of Orthosia opima. This insect was first taken here in 1842, in which year I captured two specimens upon willow-blossoms, and another was taken by Mr. Cook ; we also met with it the two following years, but not in any plenty. We have not seen it this year, although it generally appears from about the 8th to the end of April.—Thomas H. Allis ; York, April 17, 1845.

Capture of Orthosia congener. This was described by Mr. Westwood as *Apamea* unanims. On the 4th and 5th of August, 1841, I captured five worn specimens at Askham bogs, feeding upon the blossoms of the common rush ; and in the following year, I took ten specimens in the same locality, between the 18th of July and the 9th of August.—*Id.*

Capture of Pterophorus lithoxyloclactylus. For this insect I am indebted to the kindness of the Rev. John Preston, of Doncaster, by whom it was taken. Other specimens have occurred in the same neighbourhood.—*Id.*

On Miana strigilis and Æthiops. A great mistake appears to have been made by those persons who suppose *M. strigilis* to be a variety of *M. Æthiops*, (*Zool.* 889). I will give some reasons why it is not. In the neighbourhood of Hackney, for the last twelve years, I have seen and taken numbers of *Æthiops*, and have bred them from the larva in some quantity, but have never seen one *strigilis*. Last summer, sugaring among the gardens at Haggerston and Hoxton, *Æthiops* came in numbers, but none of *strigilis*. If, then, *strigilis* is a variety of *Æthiops*, it is strange that some are not found where *Æthiops* abounds. The reason is, *Æthiops* frequents gardens and pasture land — *strigilis*, woods and copses. Again, it will be found that *Æthiops* appears earlier than *strigilis*. It is a pity that those who have confounded these two species, should not have stated their reasons for considering them one and the same. Have they ever seen *Æthiops* take *strigilis* for its mate? — No. When that takes place, some still stranger varieties will be found.—H. T. Harding ; 1, York St., Church St., Shoreditch.

Caterpillar of Nyssia Zonaria in Skye. I formerly made a communication respecting some larvæ which were found in the Isle of Skye, by my friend Mr. Cooper, of Preston, (*Zool.* 686). I saw him last week, and learned that a female *Nyssia Zonaria* had come out this spring, from one of the chrysalides that was uninjured. I hinted to Mr. Henry Doubleday what I thought they were. Now it is a question whether *Nyssia Zonaria* is indigenous to the Hebrides or not ; and those which have been found at New Brighton, Cheshire, have been originally imported thither among wool &c., or rushes that have been used to pack up fish with. My friend informs me that the larvæ were in swarms upon the sand-hills of Bernarrah, and several other islands which he visited.—Jas. B. Hodgkinson ; Manchester, May 21, 1845.

Xerene Rubiginata, &c. In a late number (*Zool.* 889), your correspondent inclines to the opinion that *Xerene plumbata* is distinct from *rubiginata* ; I have taken both in this neighbourhood, and consider it merely a dark variety, as specimens occur intermediate between the two : there is certainly no palpable difference in their flight. If Mr. Hodgkinson had examined the grass, he would have found the disappeared in-

sects quite as partial to it as the foliage. I have captured both *Miana strigilis* and *Æthiops*, and they are unquestionably one species; your correspondent need only examine a tolerable series of the foregoing insects, to be convinced of his error. *Plusia Interrogationis* has been taken here several times, quite as often on the wing as at rest on the stone walls: *P. bractea* is rare, and always taken at rest; my specimen was captured on the summit of Werneth Low, near Hyde, in August, 1839. The whole of this genus appear to be of a semidiurnal character, and very active in their habits. I consider *Percontationis* a variety of *Iota*. — *R. S. Edleston; Cheetham Hill, near Manchester, April 7, 1845.*

Captures of Lepidopterous Insects at Manchester. The weather, for some weeks after the new year set in, was so extraordinarily cold, that nothing in the shape of collecting could be put in force. Towards the close of February I determined to try Dunham Park, although the ground was covered with snow. *Anisopteryx leucopheraria*, *Phigalia pilosaria* and *Leptogramma irrorana?* were my captures; the latter insect I suppose must have survived the winter. Since then the weather has changed, and other species have made their appearance, as *Anisopteryx Æscularia*, male and female, *Nyssia hispidaria*, *Biston Prodromarius*, *Orthosia Populeti* (*Fab.*, *intermedia*, *Steph.*), *Ceropacha flavicornis?* *Larentia multistrigaria*, *Lobophora rupestraria?* *Gracillaria hemidactylella*, *Lampronia purpurella*, *Oporinia nubilea*, *Leptogramma literana*, and *Hibernia stictaria*. Of the latter insect I have taken some extraordinary varieties, varying from light fawn to the *darkest brown*. The genus *Leptogramma* appears to consist of *one variable species*.—*Id.*

Capture of Lepidopterous Insects near London. I beg to enclose you a list of some of my captures in Lepidoptera within the last two years, with localities and dates, and trust it may be useful to collectors generally. I have as far as possible excluded such species as are considered abundant or common in most places.

<i>Ægeria Stomoxiformis</i> ,	...	Aug. 16.	Coburg-road.
<i>Cossus ligniperda</i> ,	...	Aug. 8.	Ditto.
<i>Euthemonia Russula</i> ,	...	July 9.	Combhurst.
<i>Spilosoma papyratia</i> ,	...	May 30.	Deptford-marshes.
<i>Lithosia aureola</i> ,	...	May 19.	Leatherhead-common.
<i>Lytæa umbrosa</i> ,	...	Aug. 10.	Deptford-marshes.
<i>Charæus fusca</i> ,	...	Sept. 23.	Norbury-park.
<i>Agrotis corticea</i> ,	...	July 6.	Lime-trees, Clapham-common.
... <i>suffusa</i> ,	...	Sept. 19.	Dulwich-wood.
<i>Graphiphora C-nigrum</i> ,	...	Sept. 1.	Coburg-road.
<i>Orthosia munda</i> ,	...	March 30.	Dulwich-wood.
... <i>sparsa</i> ,	...	April 2.	Ditto.
... <i>miniosa</i> ,	...	March 30.	Ditto.
<i>Mythimna grisea</i> ,	...	July 27.	Ditto.
<i>Amphipyra pyramidea</i> ,	...	Sept. 3.	Lullingstone-park.
<i>Xylina semibrunnea</i> ,	...	Oct. 10.	Norbury-park.
<i>Calocampa exoleta</i> ,	...	March 26.	Dulwich-wood.
<i>Hadena thalassina</i> ,	...	May 21.	Darent.
... <i>Genistæ</i> ,	...	May 19.	Leatherhead.
... <i>Capsincola</i> ,	...	June 28.	Coburg-road.
<i>Apamea fibrosa</i> ,	...	Aug. 5.	Hammersmith.
... <i>nictitans</i> ,	...	Sept. 3.	Lullingstone-park.

<i>Apamea secalina</i> ,	...	Aug. 21.	Coburg-road.
... <i>ophiogramma</i> ,	...	July 31.	Deptford-marshes.
<i>Miana minima</i> ,	...	July 28.	Ditto.
... <i>literosa</i> ,	...	July 29.	Coleharbour-lane.
<i>Polia tineta</i> ,	...	June 18.	Dulwich-wood.
... <i>dysodea</i> ,	...	July 5.	Coburg-road.
<i>Thyatira derasa</i> ,	...	July 15.	Clapham.
<i>Ceropacha flavicornis</i> ,	...	March 18.	Dulwich.
<i>Tethea subtusa</i> ,	...	July 25.	Lime-trees, Clapham.
<i>Gortyna micacea</i> ,	...	Sept. 20.	Coburg-road.
<i>Nonagria Typhæ & crassicornis</i> ,	Sept. 10.	Hammersmith.	
... <i>straminea</i> ,	...	July 21.	Coburg-road.
<i>Leucania pygmina</i> ,	...	Sept. 21.	Ditto.
... <i>geminipunctana</i> ,	Sept. 16.	Hammersmith.	
<i>Cucullia Lactucæ</i> ,	...	June 23.	Croydon.
<i>Phytometra ænea</i> ,	...	June 23.	Sanderstead.
<i>Acosmetia arcuosa</i> ,	...	July 19.	Dulwich.
<i>Euclidia Mi</i> ,	...	June 11.	Plumstead.
<i>Phigalia pilosaria</i> ,	...	April 17.	Coburg-road.
<i>Biston Prodomarius</i> ,	...	April 4.	Darent.
<i>Geometra lunaria</i> ,	...	June 4.	Dulwich.
<i>Ellopia fasciaria</i> ,	...	July 15.	Dartford-heath.
<i>Hemerophila abruptaria</i> ,	...	May 4.	Wandsworth.
<i>Boarmia crepuscularia</i> ,	...	April 21.	Eltham.
<i>Numenia pulveraria</i> ,	...	April 20.	Dulwich.
<i>Ephyra trilinearia</i> ,	...	May 19.	Norbury-park.
... <i>porata</i> ,	...	May 4.	Dulwich.
<i>Harpalyce Corylata</i> ,	...	May 19.	Norbury-park.
<i>Electra testata</i> ,	...	Sept. 10.	Hammersmith.
<i>Euthalia impluviata</i> ,	...	May 26.	Coburg-road.
<i>Phibalapteryx tersata</i> ,	...	July 9.	Charlton.
... <i>vitalbata</i> ,	...	July 9.	Sanderstead.
... <i>lignata</i> ,	...	June 18.	Hammersmith.
<i>Scotosia vetulata</i> ,	...	July 9.	Sanderstead.
<i>Triphosa cervinata</i> ,	...	April 30.	Dulwich.
<i>Chesias spartiata</i> ,	...	Oct. 11.	Leatherhead-common.
<i>Thera juniperata</i> ,	...	Oct. 25.	Sanderstead.
<i>Lobophora dentistrigata</i> ,	...	April 11.	Dulwich.
... <i>hexapterata</i> ,	...	May 21.	Swanscomb.
<i>Eupithecia abbreviata</i> ,	...	April 8.	Dulwich.
<i>Bapta bimaculata</i> ,	...	May 12.	Stoat's-nest.
<i>Emmelesia luteata</i> ,	...	June 23.	Sanderstead.
<i>Pœcilophasia marginata</i> ,	...	May 21.	Darent.
<i>Drepana lamula</i> ,	...	May 19.	Dulwich.
<i>Pyralis glaucinalis</i> ,	...	July 28.	Ditto.
<i>Ennychia cingulata</i> ,	...	Aug. 11.	Box Hill.
<i>Margaritia hyalinalis</i> ,	...	Aug. 11.	Ditto.
... <i>ferrugalis</i> ,	...	Sept. 7.	Battersea.

<i>Tortrix chlorana</i> ,	...	June 12.	Coburg-road.
<i>Pseudotomia proximana</i> ,	...	May 19.	Dulwich.
...	<i>puncticostana</i> ,	May 19.	Ditto,
...	<i>Strobilella</i> ,	May 5.	Ditto.
...	<i>Trauniana</i> ,	June 9.	Albany-road.
...	<i>nitidana</i> ,	June 11.	Dulwich.
...	<i>Gundiana</i> ,	May 12.	Stoat's-nest.
<i>Steganoptycha Rubiana</i> ,	...	Augt. 11.	Buckland.
<i>Anchylopera Lundana</i> ,	...	May 21.	Sanderstead.
...	<i>siculana</i> ,	May 28.	Dulwich.
<i>Semasia grossana</i> ,	...	May 19.	Norbury-park.
...	<i>Wæberana</i> ,	July 21.	Albany-road.
...	<i>minutana</i> ,	July 21.	Ditto.
...	<i>Rheediella</i> ,	May 14.	Dulwich.
...	<i>perlepidana</i> ,	April 23.	Birch-wood.
<i>Cnephasia egenana</i> ,	...	Augt. 11.	Buckland.
...	<i>quadripunctana</i> ,	Augt. 11.	Betchworth-hill.
<i>Pœcilochroma semifuscana</i> ,		Sept. 3.	Hammersmith.
<i>Euchromia purpurana</i> ,	...	June 16.	Selsden.
<i>Peronea striana</i> , <i>Desfontianana</i>			
and <i>ruficostana</i> ,	...	Oct. 12.	Leatherhead-common.
...	<i>semiustana</i> ,	Oct. 29.	Ditto.
...	<i>Byringerana</i> ,	April 19.	Dulwich.
<i>Acleris subtripunctulana</i> ,	...	Augt. 11.	Box Hill.
<i>Leptogramma squamana</i> and			
<i>fulvomixtana</i> ,	...	Oct. 1.	Leatherhead-common.
<i>Argyrotoza Conwayana</i> ,	...	May 19.	Dulwich.
<i>Argyrolepis margaritana</i> ,	...	June 29.	Croydon.
<i>Cochylis rosana</i> ,	...	Aug. 4.	Hammersmith.
<i>Orthotælia venosa</i> ,	...	July 31.	Ditto.
<i>Depressaria applana</i> ,	...	March 24.	Dulwich.
...	<i>ocellana</i> ,	March 21.	Ditto.
...	<i>gilvella</i> ,	Aug. 10.	Deptford-marshes.
...	<i>Alstrœmeriana</i> ,	April 14.	Lordship-lane.
...	<i>costosa</i> ,	Aug. 29.	Clapham-common.
<i>Anacamptis Betulea</i> ,	...	April 28.	Birch-wood.
...	<i>alternella</i> ,	June 9.	Sanderstead.
...	<i>rivella</i> ,	July 29.	Coleharbour-lane.
...	<i>aspera</i> and <i>proxima</i> ,	July 14.	Blackheath.
<i>Macrochila marginella</i> ,	...	June 16.	Sanderstead.
<i>Enicostoma Thunbergana</i> ,		May 21.	Goose-green.
<i>Adela Sulzella</i> ,	...	June 9.	Sanderstead.
<i>Diurnea Novembris</i> ,	...	Nov. 19.	Dulwich.
<i>Epigraphia Avellanella</i> ,	...	March 31.	Ditto.
<i>Yponomeuta leucatella</i> ,	...	July 14.	Blackheath.
<i>Ismene Clematella</i> ,	...	Aug. 24.	Birch-wood.
<i>Argyromiges unipunctella</i> ,		Aug. 17.	Albany-road.

Herebeia Fosterella,	...	May 12.	Coulsdon.
... Clerckella,	...	June 16.	Dulwich.
Microsetia quadrella,	...	June 27.	Charlton,
... sericiella,	...	April 28.	Dulwich.
... Gleichella and Pfeifferella,	...	June 9.	Sanderstead.
Glyphyteryx Schæfferella,		June 17.	Albany-road.
Callisto fuscoviridella,	...	May 12.	Coulsdon.
Chrysicoris angustipennella,		April 28.	Birch-wood.
Porrectaria ornatipennella,		June 29.	Sanderstead.
Batia lunaris,	...	July 14.	Blackheath.
Endorea pallida,	...	June 24.	Coburg-road.
Phycita fascia,	...	July 28.	Dulwich.
Chilo forficellus, male, and C. caudellus, female,	...	July 17.	Coburg-road.
... gigantellus, female,		Aug. 12.	Hammersmith.
Plutella Acinacidella,	...	Sept. 26.	Sanderstead.
Tinea lappella,	...	Aug. 11.	West Humble.
Lepidocera mediopectinella,		Aug. 6.	Deptford-marshes.
Lampronia capitella,	...	May 14.	Albany-road.
... auropurpurella,		April 28.	Birch-wood.
... Helwigella,	...	May 12.	Stoat's-nest.
... concinella,	...	June 1.	Sanderstead.
... bistrigella,	...	June 2.	Dulwich.
Pterophorus tetradactylus,		Aug. 11.	Box Hill.

Geo. Bedell; 4, *Waterloo Place, Coburg Road, Kent Road, April 29, 1845.*

A Gnat observed two miles from land. I once saw a midge (I know not the scientific name) flutter in a calm day over a boat in Mount's Bay, at least two miles from shore; a more wonderful exploit, perhaps, considering the relative powers of the insects, than that of the dragonfly recorded Zool. 950.—*F. Holme.*

Parasitism of Chalcidites. 1. *Pteromalus muscarum*, (*Linn.*) The great numbers of this elegant and brilliant little fly compensate for its apparent individual insignificance, and it is an example of the rule that the species of creatures exercise in their collective capacity, a more important function in the economy of Nature, in proportion as they are lower in the scale of creation. During the early part of spring it occurs in abundance on windows having an eastern aspect, and is accompanied by *Chlorops lineata* (*Fab.*), of which it is probably a parasite. It varies exceedingly in size, and it is to be hoped that the cause of this variation may be ascertained, whether the parents give birth to offspring equal to themselves in size, or—if the comparative magnitude of the insect is not hereditary—whether it depends upon the quantity of nourishment which it procures in the body of the larva on which it feeds. I have never seen the male of this species, notwithstanding the profusion of the female. *Eulophus Hippia* associates with the latter, and is perhaps another parasite of *Chlorops lineata*. "The clypeus of *Pt. muscarum* is slightly emarginate, and the spiracles of the meta-thorax are, in this genus, somewhat oblong,"—*Haliday, MSS.*—*Francis Walker.*

Descriptions of the British Species of Bees belonging to the Genus Sphecodes of Latreille. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

THE British species belonging to this genus have hitherto remained in great confusion, no one having apparently bestowed upon them sufficient attention to disentangle them. I think I shall be able to show, that notwithstanding their uniformity in colour, they are abundantly distinct in form; and I hope to point out other distinguishing characters, whereby they may be easily separated. Linnæus and Fabricius have both described a species under the trivial name of *gibba*; but the specimens labelled "gibba" in the Banksian cabinet are distinct from that so named by Linnæus, and preserved in the Linnean cabinet, the latter being the "*Sphecodes*" of Kirby. But as specimens agreeing with the Fabrician insect are also in the collection of Linnæus, that author doubtless considered them all as constituting but one species; and the descriptions of both authors would, in fact, point out the *Sphecodes gibba* of Fabricius—an insect now generally known as the *Sphecodes gibba*.

Most authors who have described or alluded to this genus since the publication of Mr. Kirby's Monograph, have described them as parasitic insects; but I am not aware that any one has proved them to be so. The supposition I believe to be founded on their wanting the polleniferous organs, combined with a habit they have of entering holes, or burrows in banks, as if in search of the nest of some bee, wherein to deposit their eggs. This, however, is but slight evidence. There is, perhaps, no insect which has the habit of entering the burrows of other species, more constantly than *Trypoxylon figulus*,—an insect which I have ascertained to be no parasite, since it furnishes its nest with spiders; still, I have never observed it burrowing. Again, *Ceratina* is destitute of polleniferous organs, but this insect has been proved by Mr. Thwaites to construct its own nidus. Reaumur has described *Sphecodes* as excavating its burrows in the bare sections of banks to the depth of nine or ten inches, in which to deposit its eggs, together with a supply of pollen and honey; Mr. Kirby appears to have entertained the same view; and my own observation leads me to a similar conclusion. On several occasions I have seen these bees busily engaged in burrowing; and last summer I watched one thus employed for a considerable length of time. All that I have seen engaged in this way had selected a spot, either in the midst of a

colony of Halicti or Andrenæ. I think it, however, very probable, that they frequently make use of a ready-formed burrow, and that they furnish a supply of liquid honey, in the manner of Colletes or Ceratina. I am thus led to dissent from the generally received opinion of their being parasitic; and shall endeavour, by future observation, to place their true habit beyond a doubt. Walckenaer, Serville, and St. Fargeau, agree in considering Sphecodes to be parasitic upon Halicti; my own observation has shown me that they are as frequently to be found in company with colonies of Andrenæ: and, if parasitic, I think it will eventually be found that they are by no means confined to the species of the genus Halictus.

Genus. — SPHECODES, Latreille, St. Fargeau.

Sphex, Linnæus. *Nomada*, Fabricius. *Melitta*, Kirby.



1. *Sphecodes gibbus*, male. 2. Ditto, female. 3. *Sphecodes Sphecodes*, male. 4. Ditto, female.
5. *Sphecodes subquadratus*, female. The head of the male is of the same subquadrate form.

Sp. 1. SPHECODES GIBBUS, St. Fargeau.

Sphex gibbus, Linnæus. *Nomada gibba*, Fabricius.

Melitta gibba, Kirby.

Fig. 1, 2.

Female. — Length 4—4½ lines. Black. Head the same width as the thorax, finely and closely punctured. Mandibles dark ferruginous, black at their base. Antennæ piceous beneath. Thorax deeply and closely punctured, thinly clothed beneath and upon the sides with hoary pubescence. Anterior tibiæ slightly ferruginous in front.

All the tarsi ferruginous. The wings slightly fuscous. The abdomen shining red, the segments slightly constricted and finely punctured at their base, the sixth segment black, and sometimes the fifth is more or less so.

Male.—Length 3—3 $\frac{3}{4}$ lines. Black. Head the same width as the thorax, punctured as in the female. Face clothed with silvery hair. The antennæ not so long as the head and thorax, the latter punctured as in the female. Wings slightly fuscous. The abdomen shining red, margin of the third and the rest of the apical segments black.

This is the true *Nomada gibba* of Fabricius, as I found on comparing it with a specimen in the Banksian cabinet. It is easily distinguished from the following species, the form and comparative size of the head being very different. The wings are only slightly fuscous, and the base of the abdomen is not black, as in that species.

Sp. 2. SPHECODES SPHECOIDES.

Melitta Sphécoides, Kirby's Mon.

Fig. 3, 4.

Female.—Length 4—4 $\frac{1}{2}$ lines. Black. Head wider than the thorax, deeply and closely punctured. Thorax shining, with deep scattered punctures. The wings fuscous, with a darker cloud at the apical margins. Abdomen shining red, the extreme base, or sometimes the basal half of the first segment black, the margin of the fourth, and the fifth and sixth segments, black; the two or three basal segments are slightly constricted.

Male.—Length, 2 $\frac{1}{2}$ —3 $\frac{1}{2}$ lines. Black. Head wider than the thorax, deeply and closely punctured. Face clothed with silvery hair. Antennæ longer than the head and thorax. The thorax shining, with deep scattered punctures. The wings slightly fuscous, with a darker cloud at their apical margins. Abdomen red, black at the base and apex, sometimes with only a narrow red fascia, or with a black fascia in the middle of the red.

This species is easily distinguished from the preceding by the size of its head and dark wings. The male is the *monilicornis* of Kirby. I have frequently taken the sexes together in numbers, where not a specimen of *gibbus* occurred, and *vice versa*. It is abundant about London.

The *piceus* of Kirby is a variety of this species, the abdomen being nigro-piceous at the base and apex, with a piceous stain between.

Sp. 3. SPHECODES PELLUCIDUS, *Smith.*

Female.—Length, 3—3 $\frac{3}{4}$ lines. Black. Head not wider than the thorax, closely punctured. Thorax closely punctured. The wings slightly fuscous, their margins palest. Abdomen shining red, the three apical segments black, sometimes the margin of the third black.

Male.—Length 3 $\frac{1}{2}$ —4 lines. Black. The head finely and closely punctured, the same width as the thorax. Face clothed with silvery hair. The thorax deeply and closely punctured, with a silvery pubescence at the sides, beneath, and on the tip. Claws ferruginous. The wings hyaline. Abdomen red, the base and four apical segments black, sometimes an oblong patch or a fascia at the base of the second segment.

This distinct species I have only taken at Hampstead, and in that neighbourhood, where it is abundant. The female most closely resembles gibba, but it is uniformly smaller, and the wings are always lightest at their margins; its male is at once known by its hyaline wings, and by having the base as well as the apex of the abdomen black, and its shorter antennæ and smaller head separate it from the male of Sphecoides. This species is also much more pubescent than the others of the genus, particularly the male.

Sp. 5. SPHECODES SUBQUADRATUS, *Smith.*

Fig. 5.

Female.—Length 4—4 $\frac{1}{2}$ lines. Black. Head subquadrate, closely punctured. Thorax deeply but not very closely punctured. Wings slightly fuscous, with a darker cloud on their apical margin. Tarsi ferruginous. Abdomen red, the apical segments black.

Male.—Length 3—4 lines. Black. Head subquadrate, finely punctured. The face with a shining silvery pubescence. Antennæ nearly as long as the head and thorax, the latter finely punctured. Tarsi ferruginous. Abdomen red, the margin of the third and the rest of the apical segments black.

The subquadrate form of the head of this species at once distinguishes it; in other respects it closely resembles gibbus. It is not so common as gibbus, at least in the neighbourhood of London, but still is by no means scarce. I took my specimens at Charlton, in the sand-pits.

Sp. 5. SPHECODES GEOFFROYELLUS.

Melitta Geoffroyella, Kirby's Mon.

Female.—Length, 2 $\frac{1}{2}$ lines. Black. Head the same width as the

thorax, shining and minutely punctured. Mandibles, and antennæ beneath, ferruginous. Thorax shining and minutely punctured. The wings brilliantly prismatic. Legs piceous; the anterior tibiæ in front, the tips of the knees, and the tarsi, ferruginous. Abdomen red, the fourth, fifth and sixth segments, and sometimes the margin of the third, black.

Male.—Length $2\frac{1}{2}$ lines. Black. Head as wide as the thorax, very finely punctured. The antennæ piceous beneath. Thorax shining and finely punctured. The wings brilliantly prismatic. Anterior tibiæ in front, and all the tarsi, pale ferruginous. The abdomen red, the base and apex black, sometimes nearly all black, with slight indications of red, or with a black fascia dividing the red.

The male of this minute species is the var δ . of Kirby.

Sp. 6. SPHECODES DIVISUS.

Melitta divisa, Kirby's Mon.

Female.— $2\frac{1}{2}$ —3 lines. Black. Head shining and finely punctured, as wide as the thorax. Mandibles ferruginous at their tips. Antennæ slightly piceous beneath. Thorax shining, not very closely punctured. The wings slightly fuscous, iridescent. Legs black, with the tips of the tarsi ferruginous. Abdomen red, the base and three apical segments black.

Male.—Length, 2— $2\frac{1}{2}$ lines. Black. Head wider than the thorax. The face covered with silvery pubescence. Antennæ slightly piceous beneath. Thorax not shining, very finely punctured. The wings iridescent and slightly fuscous. Anterior tibiæ in front, and all the tarsi, ferruginous. Abdomen red, oval, the base and apex black, or nearly entirely black, the margins narrowly edged with piceous.

The female of this species closely resembles the same sex of *Geofroyellus*, and is somewhat difficult to separate. The head is rather more subquadrate, and the base as well as the apex of the abdomen is usually more or less black. The male is easily separated; the head is wider than the thorax, and the latter is so minutely and closely punctured as to have an opaque appearance. FREDERICK SMITH.

Newington Butts, June 18, 1845.

Various Duration of Insect Life in Spirits. Some tribes of Coleoptera, generally the predaceous races, and particularly the Brachelytra, die almost immediately in spirits. I have known *Necrophorus vespillo* killed by three minutes' immersion. The herbivorous tribes are much more tenacious of life; and some of the Rhynchophora, particularly of the genera *Apion* and *Calandra*, will revive after several days. How is this explained?—*F. Holme*.

Rediscovery of Odontonyx. As my *re-discovery* (if it may be so called) of the genuine *Odontonyx* (Zool. 851) seems to have excited some interest, I may mention that on a late visit to my friend, Mr. Vernon Wollaston, almost my first glance at the treasures of his cabinet revealed to me an *Odontonyx* standing with *Olisthopus*, agreeing in every point with my own; and being fortunately unmutilated, it enables me to affirm, with a safe conscience, that the intermediate claws are not less distinctly denticulated than the others. Mr. Wollaston believes it was taken near Newark; so that from Newark to Scilly it has a tolerably wide range.—*Id.*

Ctenicerus sanguinicollis. Four specimens of this beautiful insect were taken in a decayed ash-tree near Fulborne, in this neighbourhood, about the middle of last March. They were all found within a couple of inches of the bark, in company with several larvæ, which may possibly turn out to be of the same species. — *Hamlet Clark; Corpus Christi College, Cambridge, May 28, 1845.*

Omaeus aterrimus. I have received an extensive series of this insect from Whitte-sea-mere, where it is now to be found, crawling on the muddy sides of ditches.—*Id.*

Mesosa nubila has been taken in abundance at Monk's Wood, in rotten branches of old oaks. I myself have seen between forty and fifty specimens, which were captured about ten days ago.—*Id.*

Captures in the Cambridge Fens. *Haliphus ferrugineus*, *Noterus crassicornis* and *Hydaticus transversalis* I have taken in tolerable abundance in Burwell and Quy fens, and a single specimen of *Hydaticus Hubneri* from Quy fen.—*Id.*

Scarcity of certain Dyticidæ. Several other species of *Dyticidæ*, as *Colymbetes exoletus*, *abbreviatus*, *vitreus* and *nebulosus*, which, last season, were far from uncommon, I have hardly met with at all. This may be partially owing to the lateness of the season, but I fear is rather to be attributed to the extensive system of draining, which is every year destroying our best localities.—*Id.*

Note on the Capture of Rhynchites cupreus &c. at Black Park, Bucks. I beat five specimens of this rare *Curculio* from off the blossoms of the mountain-ash yesterday, in company with *Necydalis minor*. I had previously received three specimens through the kindness of my northern friends. It appears to have always been very rare in the south of England, from what I have been able to ascertain, only two or three examples having previously occurred. I have no doubt the larvæ feed either on the berries or leaves of the ash. I also subjoin a list of a few other *Coleoptera* found by me in the same locality. *Ips ferruginea*, *Rhagium bifasciatum* and *Hylastes ater* upon fir-stumps. *Metallites marginatus* and *Rhynchites æneovirens* by beating. *Brachysomus hirsutulus* in a sand-pit. *Coccinella M-nigrum*, *ocellata* and *oblongo-guttata* off fir-trees. *Sphæroderma orbiculata*. — *Samuel Stevens; 38, King St., Covent Garden, June 3, 1845.*

Description of Monoplia tetra, a new Coleopterous Insect of the order Cerambycites. This little beetle has very much the appearance of a small *Callidium*, but differs essentially in having the third joint of the antennæ furnished at its apex with a long spine; the total number of joints is eleven, they are all slightly hairy, but with the exception of the third, without spines; the length of the antennæ is about equal to that of the body. The prothorax is manifestly longer than wide, slightly wider than the head, slightly convex laterally, and totally without the lateral tooth present in *Phoracantha*. The elytra are rather depressed dorsally, and rounded at the apex. The legs are rather short; the femora externally suddenly incrassated. The general colour is pitchy red: the prothorax opaque and granulated: the elytra gibbous, evidently punc-

tured at the base, but almost smooth towards the apex; each has two ivory-white transverse spots, one before, the other behind the middle; these neither reach the sutural or costal margin. Length, .425 inch; breadth, .13 inch. The specimen described has been obligingly lent me by the Rev. Mr. Horsley; it was taken in Australia by C. H. Horsley, Esq.—*Edward Newman; Peckham, June 20, 1845.*

Description of Agapete carissima, a new Coleopterous Insect of the Order Cerambycites. The general appearance of this pretty beetle is that of a Linnean *Necydalis* (*Molorchis* of Fabricius); it however differs essentially in its short and simple hind legs, and leads to the conclusion that the association of those *Cerambycites* which have abbreviated elytra, is not strictly natural. The genus may be thus characterized.—Head short, narrower than prothorax; the face longitudinally grooved: antennæ rather distant, placed on distinct prominences, quite as long as the body, and twelve-jointed; the second joint, as usual, short, the fourth also very short, a distinguishing character of *Necydalis major* and certain cognate species; first and third joints about equal in length, and the remaining joints, the fifth to the twelfth inclusive, are also of equal length, but longer than the first and third. Eyes somewhat reniform, but considerably narrowed towards the crown. Prothorax slightly broader than long, slightly convex at the sides, and without lateral spine or tubercle. Elytra at base rather broader than prothorax, suddenly narrowed very near the base, and about half as long as the body, the narrowed or apical portion grooved above. The legs are of equal length, and very short, the hind legs, when fully extended, not reaching the extremity of the abdomen: femora simple. The colours of the species may be thus described. Head and prothorax golden yellow; eyes, antennæ and legs black; elytra black at the base, grey at the apex; wings ample, unfolded smoky black; meso- and metathorax black, clothed laterally with grey down: abdomen black, testaceous at base, and having three pale testaceous downy rings. Length, .8 inch; breadth, .18 inch. The specimen described was lent me by the Rev. Mr. Horsley; it was taken in Australia by C. H. Horsley, Esq.—*Id.*

Chimpanzee. A larger, stronger, and more active chimpanzee than any previously imported, was lately consigned to Messrs. Coleman, Flockhart & Co., from the river Nunez, near Sierra Leone. On its arrival in the London docks, I paid it a visit, and immediately communicated with Mr. Yarrell, with a view to obtaining it for the Zoological Society: the officials, however, were already on the alert, and the creature has since been purchased by the Society for £300. The following paragraph, which has been circulated in the London newspapers, was, I hear, penned by one of the keepers. "It is singular that she resists every attempt to correct her, fighting with the utmost determination; every other animal, even the ourang, fears its keeper. The first day of the chimpanzee's arrival at the gardens, she tore out three of the strong iron bars of her cage, which have been since strengthened. A temporary nail was driven about half its length, into a piece of wood, about 6 inches long and 3½ square; she held the wood between her teeth, and doubling the nail backwards and forwards, broke it short off. When in a passion, she tears her hair and rolls herself on the ground violently. Her table is supplied from her keeper's, and she shares in everything and anything he has. She eats her egg with a spoon, takes her grog daily, and, 'tis said, that when on board ship, she mixed the latter herself. She will lock and unlock a door or drawer,

will thread any needle; she cannot be taken in by the same thing twice, and will imitate almost anything that is done before her. She is considered by Professor Owen, to be about nine years old, which well agrees with all accounts of her previous life. She weighs 52 lbs.; measures 2 feet 2 inches round the chest, and is 3 feet 2 inches high; or, as she will not stand upright to be measured, probably her height is nearly 3 feet 6 inches." On making a more careful examination of this animal in her present abode, I was particularly struck by her want of teeth. Only one incisor and a few imperfect molars appear to remain. I observed her total inability to crack a nut, a feat performed by almost every other monkey with great adroitness. Her manners now are perfectly quiet, and there is no appearance of the ferocity implied in the preceding quotation; she was gentle in the extreme, shaking hands in a very cordial manner with some children who were present, and perfectly on the alert at the sound of her name—"Susan"—whenever it was uttered. I presume the keeper imagined that details of her ferocity would give her an interest in the eyes of the public. I have observed that the captains of Margate steamers always tell their passengers that the present is the roughest passage they ever encountered; so the visitors of this gentle being are assured it is the most savage chimpanzee. The captain, to whose care "Susan" was entrusted, told me that in taking her meals on the passage home, she used knife, fork, spoon and drinking-cup, with the same ease as a human being; and with whatever food she was supplied, she preferred using a fork or a spoon to convey it to her mouth, to holding it in her hands. For more than three years she had been in the possession of a Mr. Campbell, who left her at perfect liberty, never subjecting her to the slightest confinement. When he received her she was quite young—a mere baby, so that her present age may be supposed four or five years, rather than eight or nine. When on board ship, she entertained a great dislike to black men, who used to tease and otherwise misuse her; but with the crew generally she appeared on excellent terms, and exhibited many traits of extreme docility.—*Edward Newman.*

Echidna Hystrix. A living specimen of this extraordinary animal was lately purchased by the Zoological Society, and conveyed to their gardens in Regent's Park; it however lived but a few days. I am not aware of any other instance of the *Echidna* having survived the passage from Australia; and the fact is highly important, as showing what may be accomplished by care and attention. We may yet succeed in domesticating, sufficiently at least for purposes of science, both this animal and *Ornithorhynchus paradoxus*: the more important features in the history of both are still unknown.—*Id.*

Marten killed in Wales. Some years ago a specimen of the marten-cat (*Martes Foina*) was taken in a trap in the middle of a large wood, near this place. It is the only one I ever heard of as occurring anywhere near here. When in Wales, at Llanberis, near Snowdon, in the summer of last year I saw an animal of this species caught by a pack of hounds, kept for the purpose of killing the foxes, wild cats, and other vermin. The Welch huntsmen, who followed their pack *on foot*, with iron-spiked poles, assured me that this animal was common, and lived in the rocks, preferring *Welch mutton*, or rather *lamb*, to any other food.—*P. S. Sclater; Odiham.*

Brown Rats in the Scilly Islands. In my additions to the Scillonian Fauna, I forgot to notice that on the formerly inhabited island of St. Helen's, rats (*Hanover rats*, as Mr. Waterton calls them), were living *au naturel* in burrows of their own construction, in which I observed that they availed themselves with great engineering skill of the protection afforded to their galleries by the boulders of granite with which the soil was strewn.—*F. Holme.*

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from page 981).

DIVISION V.

Golden Eagle, *Aquila Chrysaetos*. Very scarce: a very few specimens have been shot, during severe winters, on our downs, and in some wild forests.

White-tailed Eagle, *Haliaeetus albicilla*. Young birds are sometimes shot during the winter months. This species is seldom met with in the inland provinces; I have, however, in my possession, a living specimen, which was taken in a trap near Brussels. It was a black-tailed or young bird, and at first was very shy; when any one came near, it would poke its head under the straw in a corner of its cage: now, however, it has lost its timidity, and feeds before strangers without apparent fear. When approached, it stretches out its head and neck, and stares the spectator in the face, uttering all the while a curious guttural blowing sound. It feeds on flesh, both raw and cooked, fresh or putrid, as well as on fish; when birds or hairy quadrupeds are given to it, it plucks them rudely before eating them. I have never noticed its ejecting indigestible pellets, as the Falconidæ are known to do.

Aquila Gallica. Very rare. I have never seen any indigenous specimens, but Mr. De Selys mentions two instances of its capture.

Hawk Owl, *Strix funerea*. Included in our Fauna from the record of one bird shot in 1830.

Tengmalm's Night-owl, *Strix Tengmalmi*. Very rare. I possess I believe the only specimen killed in the country: it was shot last autumn, near Brussels.

As I am writing about owls, I may perhaps recall the following remark, which is not generally known, though noticed by several naturalists many years ago. It is, that the nocturnal birds of prey have the right and left ear differently formed, one ear being so made as to hear sounds from above, and the other from below. This is beautifully illustrated in the short-eared owl (*Otus brachyotos*), of the auditory organs of which I here subjoin a description. Klein* was the first ornithologist who noticed this conformation, which was lately renewed by Professor Vanbeneden,† with regard to *Strix Otus*.

* Ordo Avium, p. 54.

† Memoir in Mém. Soc. Roy. Sc. de Liège, i. 121, pl. 3, f. 1, 2.

The external ear of *Otus brachyotos* has the conchal opening very large, and extending from the base of the mandibles to the apex of the head.

Right ear.—Operculum narrow, lengthened. The orifice of the interior auditory canal is placed *beneath* the transverse fold, or in the *inferior* depression, and is directed *upwards*. A small fold, branching off at right angles from the anterior third of the medial transverse fold, directs itself towards the bone which forms the posterior edge of the auditory canal, traversing the anterior part of the inferior depression. Internal skin of the conch thin, ample, loose and naked. Feathers edging the ear with their inferior barbs detached, and directed slightly obliquely internally. Bony protuberances very prominent. The superior depression about $2\frac{1}{2}$ lines broad and 2 long, traversed through the middle by a small vein.

Left ear.—Operculum the same as in the right. Auditory opening placed *above* the medial transverse fold and in the *superior* depression, directed *downwards*. Inferior depression small, less than the superior one of the right ear, and without any visible trace of the small supplementary fold seen in that one. The rest as in the other ear.

Scops Eared Owl, *Scops Aldrovandi*. Very scarce. Two instances of its capture are recorded.

Bohemian Wax-wing, *Bombycilla garrula*. Seen nearly every year in the province of Liège. This pretty bird is seen in small families towards the end of winter, haunting thickets &c., and feeding on berries and worms. They are very fearless, and allow of a near approach.

Muscicapa albicollis. Several have been killed in different parts of the country: I have never seen it alive.

Nutcracker, *Nucifraga Caryocatactes*. A great migration of these birds took place through Belgium last winter, during the months of October and November: a few specimens had been taken for several years previously, in the Ardennes, into which they most probably came, following the ranges of mountains which communicate with the Vosges and Alps. A great number were taken in the horse-hair nooses set to catch thrushes and redwings, and which are baited with the berries of *Sorbus Aucuparia*. Mr. Fisher is, I believe, mistaken, when he says that the continental specimens have the mandible and maxilla of equal length (Zool. 824), for upwards of twenty I have seen this year have all of them got these of unequal length.

M. Edm. De Selys Longchamps read an interesting paper on these birds before the Royal Academy of Sciences of Brussels, which is printed in the October bulletin of the Proceedings of that Society. In

this paper he points out the distinctions between this and the nearly allied species, *Nucifraga brachyrhynchos* (*Brm.*), giving figures of the bill of both; he also enters into some details on their habits, from which it appears that they are very fearless of man, feed on berries and insects, which they search for on the ground, and have a cry resembling the jay's, but not so loud.

Rose-coloured Pastor, *Acridotheres roseus*. Two specimens have been shot.

The Mealy Redpoll, *Linota canescens*, is, I am informed, a bird of passage of rare occurrence in Flanders.

Twite, *Linota montium*. Common in the neighbourhood of Brussels in October, rare in other parts of the country. Repasses in spring. Its habits are the same as those of *Linota Cannabina*.

Linota borealis, (Viel.) Seen during cold winters, but only very accidentally.

Fringilla Petronia. An irregular and rare bird of passage in our forests in spring.

Common Crossbill, *Loxia curvirostra*. Occasional stragglers are seen every year or two, but the season of their appearance is very irregular, the bird having been seen from April until October.

The Lapland Bunting (*Plectrophanes Lapponica*), Snow Bunting (*Plectrophanes nivalis*), and Rock Pipit (*Anthus obscurus*), are accidental visitants, and appear migratory.

M. De Selys adds to his list of Belgian Vertebrata the following birds, which I have not observed in a wild state: — *Loxia bifasciata*, *Pyrrhula Erythrina*, *Pyrrhula Serinus*, *Emberiza Cirlus*, *Anthus Richardi*, *Motacilla melanocephala*, *M. cinereocephala* and *M. Yarrellii*, *Accentor alpinus*, *Petrocincla saxatilis*, *Sylvia Orphea*, *Calamoherpe aquatica*, *Coracijs garrula* and *Picus medius*.

SUPPLEMENT TO THE LAND BIRDS.

Bearded Tit, *Calamoherpe biarmicus*. This pretty Chinese-looking bird is found in only one locality in the country, namely, the reed marshes of the province of Antwerp, bordering on Holland. I have several of these birds in confinement, and they are very tame and sociable. They climb about their cage very actively, and utter no sort of note in captivity. They feed from preference on bread-crumbs moistened with water, on which they thrive well. These birds seem to need a large space for exercise, all those kept in small cages dying in a very few days.

Lesser Spotted Woodpecker, *Picus minor*. This small bird is very scarce in our woods and forests. It is uncommonly shy, and eludes observation by any other means than the use of the telescope.

Red-legged Partridge, *Perdrix rubra*. Sometimes seen in mountainous situations. The habits of this species differ materially from those of the common partridge, the males leaving the females, and assembling in coveys while the latter are sitting and rearing their young. They are more difficult to shoot than the *Perdrix cinerea*, their flight being much more rapid, and the rocky spots they inhabit rendering the footing of the sportsman in general too insecure for shooting on them, either upwards or downwards, with any certainty of success. This partridge has often been known to perch on trees, when hard pressed, and is much more silent than the common species, being seldom heard to call after being dispersed.

JULIAN DEBY.

Lacken, May 1, 1845.

(To be continued).

Occurrence of the Golden Eagle in Cheshire. A fine specimen of this bird (*Falco chrysaetos*, Linn.), was captured last month at Somerfield Park, Cheshire, the seat of Sir C. P. Shakerley, Bart. Its appearance created much surprize. After many ineffectual attempts made by the keepers to get within gun-shot, it was ultimately taken in a trap. It has since been stuffed, and is now in Sir Charles Shakerley's possession. I have ascertained that one was taken some years ago, at Eaton Hall, near Chester, the seat of the Marquis of Westminster, but am not aware of any other appearance of this bird being on record; indeed, from the peculiar flatness of this county, and the absence of those rocky fastnesses which are the favourite haunts of the Raptore, they form a very small portion of our Fauna.—*J. W. Barlow.*

The supposed Chaunting Falcon. The supposed "chaunting hawk" enquired after in the last number of 'The Zoologist' (Zool. 935), is a hen harrier.—*J. H. Gurney; Norwich, April 1, 1845.*

Anecdote of a Hawk killed by a locomotive engine. On Sunday last, as the pilot engine was proceeding towards Loughborough, and when just beyond the Barrow station, a hawk, attempting to cross the line at the moment, was knocked down by the engine. On returning to Loughborough, the hawk was found on the spot with its head cut completely off, and a snipe in its mouth, which, from the wounds at the back of the head, had evidently been killed by the former, and being too heavy, prevented the hawk's flying with its wonted rapidity, and thus was the cause of its death also.—*Leicester Chronicle, March 28.*

Female Kestrel devouring a male. Having related in your May number (Zool. 936) a case of conjugal cannibalism in the kestrel, I feel it due to the males of that species to state facts which have since been related to me, and which prove that in that respect the sexes are "six of the one and half-a-dozen of the other." A pair of kestrels in confinement having been left without their supper, the male was killed and devoured by the female before morning.—*F. Holme.*

Nesting of the Starling. I am informed by a friend of mine, who is an acute observer of birds and their habits, that an instance came within his knowledge some time ago, of the starling depositing its eggs in the same nest with a magpie. How the process of incubation was carried on, he had not an opportunity of observing.—*J. W. Barlow.*

Nesting of the Thrush, (Turdus musicus). I was surprized the other day to find the nest of this bird on the ground: it is, I think, rather an unusual occurrence.—*Id.*

Blackbird's Nest on the ground. While walking, this morning, my attention was drawn to what struck me as being a very curious circumstance, namely, a blackbird's nest built in, or rather scooped out of, the ground. The soil thereabouts is a deep sand, and in this the old bird had formed a hollow, exactly resembling a nest in shape, and had lined it with lichens, or fine twigs, or some similar substance. The nest contained four eggs, on which the hen was evidently sitting hard, as she allowed herself to be approached quite close before she would move, and returned again almost immediately after I had moved away. The nest is at the foot of a large chesnut-tree, but the two are as unconnected as if they were twenty miles apart. The ground, too, is comparatively open and unsheltered; that is, though there are other trees, there are no bushes in the neighbourhood. What could have induced this bird to have so far deviated from the habits of its tribe, as to prefer the naked ground to a thick bush? Not to mention the wide difference that must exist between collecting twigs and building a nest in a tree, and the scooping out a hollow in sand: for it is evidently not an accidental hole in the ground, but a spot deliberately fixed on and worked out. I may add that the bird does not appear to have been lately hurt or wounded, as she flies as strong as possible.—*W. W. Spicer; Esher Place, May 5, 1845.*

Occurrence of the great grey-backed Shrike near Hull. Within the last two years three specimens of the grey-backed shrike have been obtained, all within seven miles of this town; the last one was shot about a month ago. This bird is considered very rare with us, and the red-backed shrike still more so, only one specimen having occurred here to the best of my knowledge.—*Geo. Norman; Hull, April 16, 1845.*

Occurrence of Anthus aquaticus at Fleetwood. Being at Fleetwood in October, 1843, I observed three birds of an elegant shape, about the size of the wagtail, and of much the same form, but differing from that genus in the tone and colouring of the feathers. I was particularly struck with the quantity of pure white on the flanks and wings, as the birds stood with their sides towards me. When I got home, and examined Yarrell's Birds, I could not find any that corresponded, either in the figure or description, with these birds. Richard's pipit was the most like, in size and form. Mr. Yarrell hints that *Anthus aquaticus* would probably be found upon some of our coast. I had given up all thoughts of finding what the birds were, but, on opening 'The Zoologist,' which I did not receive until the 10th of this month, my attention was drawn to M. Julian Deby's excellent description of *Anthus aquaticus*, (Zool. 980) which exactly agrees with the three birds I saw at Fleetwood. Now I beg to state that I have not the slightest hesitation in saying that the birds which I saw were *Anthus aquaticus*, and nothing else. My object in wishing for the insertion of this in 'The Zoologist,' is, that it may be the means of causing others to keep a sharp look out.—*Thos. Webster; 96, Ormond St., Chorlton-upon-Medlock, Manchester, June 11, 1845.*

Occurrence of the Fire-crested Regulus in Cornwall. I find that I was not quite correct in stating that the example of *Regulus ignicapillus* which I reported to you as

having been lately noticed in this neighbourhood, was the first instance of its occurrence in the county of Cornwall, (Zool. 942). The following letter, which you are at liberty to publish, will afford further information respecting the occurrence of this interesting species in this county. The birds were found in the garden of Michael Williams, Esq., of Trewince, near Truro. I have seen the two specimens, which are male and female.—*Edwd. Hearle Rodd ; Penzance, April 16, 1845.*

Occurrence of the Fire-crested Regulus in Cornwall. I have seen Mr. George Williams, son of Michael Williams, Esq., of Trewince, in Gwennap, to whom the fire-crested Reguli belong, who has consented to the use of his name in any manner that may be thought necessary. He has given me the following particulars. On Saturday, the 1st of March last, there being a little snow on the ground, the gardener, on going into the garden at Trewince, found in the path, near a wall which had ivy growing on the top of it, the two little birds quite dead. The wing of one was covering the body of the other, and he thought at first there was only one bird, so closely were they lying together. Mr. Williams says they shall be exhibited at the next Polytechnic exhibition. If it is not too much trouble, as you are in the habit of sending notices to 'The Zoologist,' will you be kind enough to give the report in the usual way.—*Nichs. Tresidder ; Falmouth, April 12, 1845.*

Early Nest of the Blackcap. On March 11, 1845, a nest of the blackcap warbler (*Curruca atricapilla*) was found here. The nest appeared to have been blown down from its original situation, as it was but slightly attached to a twig, and contained one egg, which was cracked, but quite fresh. The only unusual thing in the formation of the nest, was that it was constructed with more moss than usual. There has been some discussion whether the blackcap is a migrant; perhaps this may afford additional evidence.—*Edward Newton ; Elveden Hall, April 25, 1845.*

Anecdote of a Robin. A gentleman, who is a neighbour of mine, was in the habit, during the last winter, of putting some crumbs out of his window every morning at breakfast-time, for the birds; and a robin in particular was very regular in his attendance to partake of them. My friend, on one or two occasions, not having risen so early as usual, and consequently exceeded his usual time for breakfast, was surprized to hear a gentle tapping on his window (which was immediately above that of his sitting-room), and which he found proceeded from his feathered pet, who had come to remind him that he was waiting for his breakfast. Even this is, I think, an indication of something more than instinct; for I believe, and have elsewhere attempted to show, that if these creatures were actuated by no higher principle, we should never find them doing anything beyond what was requisite for the gratification of mere sensual appetite and desire.—*T. W. Barlow ; Holmes Chapel, Cheshire, April 30, 1845.*

Song of the Brambling. Writers on British Ornithology are silent relative to the song of the brambling. It was a year since this last 31st day of March, that I had the pleasure of hearing its vocal powers. The first notes are a pleasing low garrulous sort of warble, which are succeeded by a hoarse and protracted one, not unlike the last note of our common green linnet, only a little deeper in tone. Bechstein, who seems to have had good opportunities of seeing this bird in the beech-forests of Germany, gives, in his 'Cage Birds,' a very exact account of its song. When I first heard it, I took it to be the green linnet, but was soon undeceived on seeing the bird. Flocks of from ten to twenty or thirty poured forth their songs every day until the 10th of April, when they took their final leave of us. How very changeable these birds are in their plumage on their arrival, and what uniformity prevails amongst the respective sexes previous to their departure! — *V. Oswald Walmesley ; Westwood, May 2, 1845.*

Occurrence of the Pine Grosbeak near Rochdale. A fine specimen of this rare bird was shot last February, in a fir-plantation near Rochdale, Lancashire. It is now in my collection.—*Hamlet Clark ; Corpus Christi College, Cambridge, May 28, 1845.*

Occurrence of the Hoopoe at the Land's End, and the Scilly Isles. During the past and the present week several specimens of this bird have been sent to Mr. Vingoe for preservation. By the Scilly packet, last week, I received from Mr. Smith, the proprietor of the Islands, a male bird, and this week the female was sent to me by the same gentleman. Both these birds were repeatedly seen together for several days, in the island of Tresco. Mr. Smith has sent me a further notice of his having secured a specimen from St. Mary's island, and of having seen two more in Ganelly, another small island adjacent to Tresco. Another example was obtained on the grounds of James Trembath, Esq., at Mayon, near the Land's End. — *Edw. Hearle Rodd ; Penzance, April, 16, 1845.*

Tameness of a Ringdove. A parallel instance to the voluntary domestication of the ringdove before mentioned (Zool. 662), occurred some years since in my own family. One of a pair kept in a cage having made its escape, liberty was given to the other ; but it continued about the grounds, at first descending warily from a tree to take the food left on the ground, then feeding from the hand from the lower branches, till at length it became so perfectly tame and familiar that it tapped with its bill at the windows, and would come, though with caution, into the sitting-room. It often ran on foot after one of my sisters, who was its especial favourite, and once, at least, brought her in its beak a glove which she had dropped. To a tame kestrel, who was a constant and attached companion of my own, the dove was an object of especial jealousy. He frequently attacked her at the windows, and was strongly suspected of being art and part in her final and sudden disappearance, after this intimacy had continued about a year.—*F. Holme.*

Occurrence of the Barbary Partridge in England. I possess a British-killed specimen of the Barbary partridge, which I purpose sending to Mr. Yarrell, for the forthcoming second edition of his valuable work on British birds. — *T. Goatley ; Chipping Norton, June 21, 1845.*

Migration of the Water Rail. With reference to the migration of this bird, to which I find some allusion made in a late number (Zool. 876), perhaps I may be allowed to state, that in this neighbourhood I find it throughout the whole year ; and, although not in numbers sufficient for me to say it is very common, still it is by no means rare.—*T. W. Barlow.*

Occurrence of Sabine's Snipe in Sussex. I have lately procured a specimen (a very good one) of the rarest of all British birds—the *Scolopax Sabini*. It was shot early last month, near one of the estuaries of Chichester-harbour. The person who killed it (a retired serjeant) sold it for five shillings ; but its new possessor (fortunately for me, not a collector) became so well aware of its value, that I succeeded with difficulty in procuring it for five pounds. I believe this is the sixth instance of its occurrence, and it has never been obtained out of the British islands. Captain Bonham, of the 10th Hussars, who shot the second that was ever killed (vide Yarrell), showed me his bird last month at Brighton. It is, perhaps, a little less dark, but otherwise it is similar in all respects to my specimen.—*A. E. Knox.*

Occurrence of the Gadwall in Kent. A male specimen of the gadwall (*Chauliodus strepera*) was shot in Romney-marsh on the 22nd of February. As far as I am able

to discover, I believe this is the first specimen obtained in Kent. — *J. Pemberton Bartlett.*

On the Austrian Adder, Coluber Austriacus (Thuringiacus). This elegant serpent is often confounded with the viper, but attains generally a larger size. Its ground colour is a reddish grey, with two dark brown longitudinal bands on the back, alternately interrupted. The two unite on the head, leaving a lancet-headed space between them. Lower down they occasionally become confluent, so as to form a series of transverse bands. There is also a narrow lateral band, commencing before the eye, and becoming generally indistinct towards the tail. The grey space between the two dorsal stripes, sometimes takes a zigzag form near the head, and such specimens are frequently mistaken for vipers, which have, however, always a dark zigzag upon a light ground. It is rarely, if ever, found in swampy localities, and shows no partiality for wild rosemary. Rocky places and dry upland woods are its favourite haunt, where it burrows under heaps of stones, brambles, &c. More agile than the viper, it is capable of climbing trees, although I have never noticed it at any great height. It is bold and pugnacious, yet perfectly innocent, as may at once be seen from an inspection of its jaws, which contain merely common solid teeth, without the moveable poison-fangs. The head is also narrower than that of the viper, from absence of the poison-glands. It kills its prey, consisting of mice, frogs and young birds, by biting and constriction. When approached it testifies its displeasure by loud hissing, and does not take to flight so readily as the viper. In our reptile-den this species maintained a decided mastery over the other snakes, which the vipers rarely attempted to dispute. A young viper once resisting, a battle ensued. The poison of the viper had no effect upon his antagonist, whose bites and gripings soon began to tell. The viper soon lay in a state of exhaustion, dead, or nearly so, when the adder, seizing it by the head, swallowed it in the usual manner. A mouse thrown into the pit was seized by the back of the head, and enveloped in the folds of the serpent. When strangled, it was swallowed. Here it strikes me that the usual accounts of serpents lubricating their prey with mucus, are greatly overcharged. When they have killed an animal, indeed, they examine it all over, touching it repeatedly with their tongue, but I have never observed any appearance of moisture left upon the skin. Now the tongue of serpents is a most unsuitable instrument for such a purpose; narrow, forked and weak, it is no more adapted for painting and plastering than for stinging. The amount of saliva requisite for lubricating an animal, would be also enormous, whilst the secretion of that fluid in the viper and Austrian adder, always seemed to me but very moderate in quantity. There would be likewise considerable risk that one part of the victim would dry before another was perfectly moistened; and whatever lubrication is necessary, could certainly be better performed in the mouth, as the morsel is passing. But there is no great need of lubrication, so well are the jaws, teeth and throat of serpents fitted for their duty. Moreover, as far as I have observed, they always seize their prey by the head, and are thus assisted by the hair and limbs, which afford, in this position, no resistance to swallowing, but prevent the animal from slipping back. They find also little difficulty in ejecting a half-digested prey from the stomach, as, by the process of decomposition, it is sufficiently lubricated, and can move in any direction with great facility. Why snakes are endowed with this faculty, and why they exercise it so fre-

quently, is not very clear. I have been induced to think that it is in order to prepare for defence when danger approaches, as they are, after a feast, exceedingly sluggish and helpless. Still, the time requisite for disgorging is rather too great to suit this explanation, as the snake might be easily killed before it had succeeded in clearing for action. Certain it is, that if you tease a serpent which has fed, it disgorges in about a minute or a minute and a half; but of all the multitudes I have captured, none ever accomplished this until it had been secured. I will conclude this account with an anecdote that shows the boldness and pertinacity of the serpent in question. A friend of mine, having captured a fine specimen on an excursion to the Königshain mountains, and being rather short-sighted, held it pretty near his face. The animal, feeling his grasp relaxed, suddenly seized him by the nose, and kept its hold for at least five minutes, to the amusement of the company, and the infinite mortification of the sufferer.—*J. W. Slater.*

Congregation of Snakes. A few days ago, whilst walking on the south side of a bank, my attention was drawn to a rustling amongst some ivy leaves; and seeing it occasioned by the movement of, as I thought, a snake, I fired at it, and great was my surprise on going to the spot, to find I had killed *nine*, seven of which exceeded two feet in length; two of them measured two feet six inches, the two smaller ones one foot nine inches. I do not know whether this is any deviation from the common habits of the snake to congregate in this way, but I never met with the circumstance before.—*Christopher Parsons; April 12, 1845.*

Notes on the Reptiles of the Isle of Wight. By THE REV. C. A. BURY.

I SHALL follow the systematic arrangement, and adopt the English nomenclature of Professor Bell, in describing the Reptilia and Amphibia of the Isle of Wight, as I have already done when giving some account of the Mammalia. I maintain that that gentleman, and Messrs. Yarrell and Forbes, are fully entitled, by the works they have respectively published, to be accounted *the* Doctors of British Zoology; and that the least compliment we, their disciples, should feel bound to pay them is, to follow in their wake, unless we are quite sure of our competency, and other well qualified judges concur in our good opinion of ourselves, to strike out a better course of our own.

As I am not aware that either of the British Turtles has honoured our island with a visit, unless perchance in the form of soup, I have to commence with the *Viviparous Lizard*. These agile little creatures abound on our heaths and commons, and may be seen, though not always caught, on the sunny side of most of our hedge-rows. They supply the kestrel with many a dinner.

The Blind Worm is very abundant along the Undercliff; but not so much so in the interior of the island. The period of reproduction assigned to this creature by Professor Bell, appears to me too limited.

I have found young blind worms, not exceeding four or five inches in length, in May, and throughout the summer; and on September 27, 1839, I caught a large female, which I transferred to a bottle, and sent to a friend. On the night of the 29th it produced from sixteen to twenty young. The blind worm, like the lizard, receives no quarter from the kestrel; I have several times taken pieces two inches long out of the craw of kestrels that have been brought me.

The Ringed Snake, although by no means uncommon, is not nearly so abundant with us as is the viper. I have been very unsuccessful in my endeavours to domesticate the snake; having never succeeded in inducing one even to feed in a state of confinement; and yet I have kept them until my humanity would not allow me to deprive the creatures any longer of their liberty.

The snake, like the viper, is fond of basking in the sun, and will expand the ribs, when basking, with a view, I presume, of intercepting more of the solar rays. The female viper is said to do so, and, I deem, with reason, in order to bring the eggs to maturity; but whether the snake, not being ovo-viviparous, can be supposed to have the same object in view, I know not. This, however, I am sure of, that the *male* viper expands the body exactly as does the female: for a male viper I once kept would render its body so nearly flat, that I question whether the thickest part would have measured three lines; yet the length of this fellow was twenty inches.

One day last summer, a snake thus basking put my courage to the test; indeed, for the moment, it did more, for it put it to flight. The animal was stretched out nearly at full length — that length being little short of a yard; and its width was so great, the colour, too, being unusually dark, that for the moment I mistook it for a black viper. Raising a shout to bring Loe to my assistance, I made a rush to enclose the head of the creature in my butterfly-net. I was not quite quick enough; and the hoop of the net not being strong enough to keep the fellow down, he glided from beneath it, and, quick as thought, was gone among the underwood, leaving behind him indisputable evidence—unless my nasal organs are very treacherous—that I had missed catching a fine specimen of the ringed snake.

The common Viper, as I have already intimated, is very abundant. I have frequently seen seven or eight during a walk in spring; and in some particular spots they are, or have been, very numerous indeed. R. Loe pointed out to me a rough piece of ground, studded with hassocks, near Alverston-mill, in the parish of Brading, where he one day saw “near a bushel” all lying together. Now, making due allowance

for the acknowledged difficulty of calculating nicely when taken by surprize, the number must have been very great: for after discharging his gun into the heap, Loe counted seventeen heads among the fragments. I have never seen anything at all approaching to this number; yet to give your readers some idea of what success they may look for, should they visit our neighbourhood in search of a cargo of vipers, I may mention that, one day in April, 1843, having wounded, on St. Boniface Down, a ring-ouzel, which sought refuge in a patch of furze not thirty feet square; two young friends and myself, while searching for this poor bird, did then and there slay three full-grown vipers, and come into pretty close contact with three, if not four more. I make a point of killing, or at least of capturing, every viper that comes within reach: for, though I doubt not they confer their quota of benefit on man, yet the poison-fang renders the viper formidable to both biped and quadruped. And yet, how seldom do accidents occur! My cats go peering about in the haunts of the viper, and certainly take no pains to avoid a collision: for, as I have often proved, they are unsuspecting of danger. My dogs, too, are constantly with their noses to the ground, and it seems remarkable that they do not blunder upon a viper occasionally. The truth is, I believe, that the viper will always make its escape, if it can; and will strike only in self-defence.

By way of illustration of what I have said above of the difficulty of judging correctly when taken by surprize, and especially if alarmed; I once heard of a lady gravely relating, without the slightest suspicion she was uttering what did not come within the range of possibilities, that a viper sprung at her face, and missing its aim, actually cleared her head! I did my best, for politeness required as much, not to express in my countenance what was passing within, when the story was told me by the friend of the lady, this friend herself being fully persuaded of the truth of the occurrence. But these ladies are not the only persons in the world who believe that the English viper can beat an English hunter at a five-barred gate. The error is a very common one; and, so far as my experience goes, not easily removed. The truth is, however, that this reptile, so far from being able to clear a lady five feet something high, could not, by the greatest effort viper flesh and blood is capable of making, so much as raise its tail from the ground. I once tried what I could learn from domesticating a viper through the winter. I obtained it September 25, 1839; and kept it usually in a room wherein was an Arnott's stove; whereby a tolerably high and equal temperature was maintained: consequently it ne-

ver became torpid. It was at first sufficiently savage; and would invariably strike at my face if placed pretty close to the glazed top of its box. In time it became somewhat better mannered; though I cannot say I ever felt sufficient confidence in its sense of propriety to trust either face or fingers within reach of its fangs. When removed to another room, and allowed free egress from its box, it would make its way to the fire, and coil itself with apparent satisfaction within the full influence of the heat. On one occasion, methought I would try whether there existed any enmity between the viper and the stoat, as I had a suspicion that in a natural state they are not the best of friends. While, therefore, the viper was thus coiled up, asleep, as I opined, I reached down the stuffed skin of a stoat, and holding it by the tail, moved it forward as if springing on the viper: quick as thought the creature struck it again and again, under, apparently, the influence of both fear and anger. I repeated this experiment for several days successively, till the viper ceased to trouble itself about what it seemed to have discovered to be without power to hurt. My suspicions of the existence of a natural enmity between the two creatures, was strengthened by the viper showing no signs of either anger or alarm if a stuffed bird was made to molest it.

When I had had this fellow about a week, I put a live mouse into the box. The viper was basking in the sunshine, and scarcely deigned to move when I dropped the mouse quietly in. The latter at first retreated into a corner; but presently growing bolder, it advanced its nose close up to the body of the viper, and once I observed their noses almost in contact. The mouse's fears being lulled, it began to take liberties, and crossed the body of the viper two or three times; upon this the viper raised its head and hissed, and mousy retreated precipitately into a corner. I left the window but for one minute, and on my return found poor mousy in convulsions, having been bitten, evidently; I took out my watch, and in three minutes and a half the mouse ceased to breathe. The viper took no further notice of the body. A second mouse gnawed its way out of the box after a day or two's confinement; during which time the immediate vicinity of so formidable an enemy did not in the least impair its appetite. It has since occurred to me that as both were house-mice, the absence of fear may perhaps be accounted for in their ignorance of the danger to which they were exposed. The field vole would probably have been affected differently.

This viper died, a good deal attenuated, January 26, 1840, having lived four months in confinement without feeding; yet on dissection,

a considerable quantity (so says my note made at the time) of excrement was found in the anal canal. I found also five pairs of rudimental fangs, graduating from the length of those in use down to mere points, floating, at least four of the five pairs, apparently unattached in the venom-sac. Most specimens I have examined have had some spare fangs; but I never saw so many as in my prisoner.

It is, I believe, thought by some, that pressure on the venom-sac, when the fang has entered its whole length into the object struck, propels the venom through the hollow of the fang into the wound. Professor Bell says, "When the animal inflicts the wound, the *pressure on the tooth* forces a small drop of the poison through the tube." I do not feel sure this would cause the venom to flow. The former opinion is certainly incorrect: for when the fangs of the viper alluded to above, in striking at my face, came in contact with the glass between us, venom was invariably deposited on the glass. I am disposed to think that the poison is propelled from the sac by sudden muscular contraction.

I am puzzled respecting the time at which the viper feeds. The form of the eye would mark it as a night-feeder; and yet I have never heard of a viper's being found on the move at night: neither have those I have kept in confinement evinced any increase of activity after night-fall. I have never detected a viper on the move in the day-time as if in search of food. Mr. Slater's very interesting paper (Zool. 829) is not conclusive on this point. Does it not watch for its prey? And is it not frequently so watching, when thought to be only basking? Mr. Waterton's high authority bears upon this point. "Snakes," says he, "are always in a quiescent state just before they seize their prey; and their mode of capturing it is by an instantaneous spring, consisting of a bound which never exceeds two-thirds of the length of the reptile's body." This I suspect to be no less true of the English viper than it is of the snakes of South America. I have frequently found the viper coiled up, as if prepared to strike; and it is sometimes much more than at others on the alert when disturbed. I find it sometimes in the sunshine, and sometimes in the shade; sometimes the ribs are expanded, but not so frequently, I think, as otherwise. On the whole I incline to the opinion that the viper watches for, and springs upon, its unsuspecting prey in the day-time.

I think the viper brings forth during all the summer months. I have caught young vipers not six inches long in the month of May; and August 12, 1841, I squeezed six young ones out of a large female. I have caught vipers of all sizes, and of all colours, the summer

through. And this leads me to say a word or two respecting the supposed varieties of the viper. The black viper may possibly be a permanent variety; that is, an adult black viper possibly has a black progeny. I know nothing to the contrary. I have seen but one, and that was a very large one, measuring full twenty-seven inches. Its skin, which, when the creature was newly killed was nearly jet black, and the markings not distinguishable, has faded to even a lighter shade than other skins kept with it of the common variety. The black viper may be said to be scarce with us. I have heard of its occurrence only a few times. An entomological friend has not yet forgotten a fright he sustained from a black viper three or four years ago. Seeing a dead stoat suspended on the branch of a tree, he rushed forward, visions of I know not what rare Coleoptera floating before his eyes, when, to his horror, he nearly set his foot on a huge black viper coiled up just underneath. On another occasion, I met the same friend in a high fever of excitement, returning victorious from a conflict with the same deadly reptile, which he had most magnanimously pelted to death with large stones, at I know not how many yards distance. Another friend tells me he has seen two or three black vipers during a residence in the island of many years. So much for the black variety.

The so-called red viper I believe to be nothing more than the young of the common viper. I have never seen a young viper of the first year that did not correspond, even to the unusual breadth of the head, with Professor Bell's description of the red variety.

In the adult state there may be said to be almost as many varieties as there are individuals: for I have captured vipers with the ground-colour of every shade, from nearly pure white to as nearly jet black, and from bright ochreous to the dingiest brown. I killed one last summer, on Pan-common, with the ground-colour even brighter than yellow ochre, and the markings a rich mahogany brown. I have seen others with the markings of jet black, with something of a metallic lustre. I have in spirits two specimens which I found napping together almost close to my house, of which the ground-colour is pale brown, and the markings are mahogany brown; while the belly of the larger, which measured about twenty inches in length, is nearly pure white; and the smaller, whose length is about fifteen inches, has the anterior portion of the abdominal scale light plumbeous, and the posterior portion marked with irregular spots of mahogany brown on a light brown ground. Others I have seen with the belly of an uniform plumbeous tint, some darker and some lighter. Others again are

spotted plumbeous and white, and others are nearly black. I do not pretend to account for all this variety, I only know it to exist; and I think it goes to disprove the existence of a number of permanent varieties of this sole noxious British reptile.

The common Frog is not plentiful. In the Undercliff I seldom see it; and, from all I can learn, it is less common throughout the island than I have known it elsewhere.

The common Toad is much more abundant than the preceding species; and I have sometimes picked up marvellously large individuals.

The common Smooth Newt and *Palmated Smooth Newt* are abundant. *The common Warty Newt* I have not succeeded in obtaining, but can scarcely doubt its existence.

I have some reason for believing that both the *Edible* and the *Tree Frog* have occurred in the island; but have failed to establish them certainly.

CHAS. A. BURY.

Bonchurch, May 31, 1845.

On the Salamander, Sal. terrestris (maculata). This little reptile, which has been the subject of such terrible traditions and marvellous anecdotes, does not, I believe, occur in Britain. In central Europe it is not uncommon, although extremely local. In appearance it may easily be distinguished from the lizard tribe by its smooth skin, weak legs and sluggish motions. Its ground colour is a rich black, variegated with numerous irregular spots of a bright yellow, scattered over the whole body. These vary much in number, size, form and position, and are sometimes nearly obsolete. In some, the spots are of a more orange tinge; these are, in all probability, the males. They feed upon various insects, which they, like most reptiles, swallow whole. They are most frequently found by the side of rivers and brooks, in rocky valleys, avoiding equally, dry and boggy places. I had only once an opportunity of capturing them in plenty, in the valley of the Neisse, between Ostritz and Hirschfelde, in Saxon Lusatia. The Neisse, a clear mountain-torrent, forces its way through the narrow rocky valley, the sides of which are covered with magnificent beech-woods. I traversed this valley in May, 1836, without finding a single specimen; but in June, 1837, I was more fortunate. A refreshing thunder-shower had just entered the valley, and the salamanders had crept forth, to enjoy the delicious coolness; eighteen fine specimens fell to my share, which I found, not at the margin of the river, but up amongst the rocks. I packed them in a tin box with plenty of wet moss, and succeeded in bringing them all safe home. Here, after specimens had been selected for several friends, the greater part of the remainder were put in a glazed box, fitted up with stones and moss, and kept always moist. As to food, we supplied them with insects of various kinds, which they soon learned to take from the tip of the finger. I always handled them with caution, not on my account, indeed, but on theirs, as the warmth of the hand seemed evidently to distress them, (this is the creature that lived in fire!). It is perfectly true that a milky, somewhat corrosive liquid does occasionally exude from their skin, and very probable that this liquid might cause unpleasant symptoms if applied to the eye;

very probable that they might be but unwholesome food, and even that a person from some peculiarity of constitution might receive injury from touching one with his hand. But who either eats them, or anoints his eyes with their secretions? And of their own accord they will assuredly never interfere with man. Their time of appearance is from about 10, A.M. till noon, in the months of May, June and July. Oken accuses them of cannibalism, especially in confinement. My specimens never made the least attempt upon each other, even when they were purposely allowed to fast, nor should I think them capable of managing any larger prey than insects. As winter approached, they showed signs of approaching torpidity, and were therefore set aside till spring. Unfortunately, the box was placed in too warm a situation, so that their sleep was imperfect, and as they were, of course, not supplied with food, I found them all perished on taking down the box in spring. Had they been left in the den with the other reptiles, they would doubtless have taken no injury. This put an end to my observations on the salamander, as I had no opportunity of revisiting their locality. In the summer of 1840, I had hopes of finding it, along with the black species, *Sal. atra*, on the lower slopes of the Lissa Hora, in Moravia; but as the day when I ascended that mountain was remarkably hot and dry, I did not meet with a single specimen. It would certainly be interesting to seek the origin of the innumerable fables concerning this animal, which flourish in the mouths of the ignorant now, as well as formerly in the works of the learned. Reptiles have been, indeed, altogether unfortunate in this respect; they are viewed by the majority of mankind with hatred and fear, and their true habits and nature thus obscured. Not only are the hurtful species represented as dragons, but the most innocent kinds are proscribed. Not content with investing every serpent with venomous properties, popular opinion confers a like honour upon the lizards and many batrachians. Thus, a few years ago I was told that a kind of newt, armed with a true sting at the end of the tail, was not uncommon in Yorkshire. My informant was convinced it was a sting, from having seen the animals strike their tails against a stick, so as to leave an impression, with the sting-point. Not being acquainted with any vertebrate animal thus armed, I offered a reward for a living specimen of the kind described, but none has appeared. One of the qualities commonly attributed to reptiles is that of being nocturnal; now, as keeping bad hours always tells against either man or beast, I must try to defend them from such a charge. The European serpents, as far as I am aware, so far from being nocturnal, are the most eminently diurnal animals known. I have never taken a viper before 9 in the morning nor after 4 in the evening, from 10 to 12 being their favourite time. On one occasion I caught a common adder as late as 8, P.M., but it had probably been disturbed after its usual time of retiring to rest. The Austrian adder and the lizards (*Lacerta agilis* and *crocea*) show also a decided partiality for the most bright and sunny hours of the day. These then are the "nightly serpents" whose hisses "resound through the forests." Well might they hiss, if they could but know and understand half the nonsense said about them. In no point is our ignorance of the real economy of these animals more obvious, than as regards the circumstances which regulate their appearance. One day you may observe them in abundance, the next, although there be no perceptible difference in temperature &c., not a single specimen is to be seen. Now reptiles certainly do, upon the whole, prefer hot, still weather, yet I have taken them also in very cold, stormy days. Thus, I found a viper on March 8, 1838, which was exceedingly brisk and vicious, although the day was chill and gloomy, with a strong north-east breeze, and occasional showers of sleet. At other times I have ranged for days

in the most favourable weather, without meeting with either serpent or lizard. It is the opinion of some that they are most abundant on the approach of an electric storm, but this is contrary to my experience. The same individuals affirm that the bite of the viper is then more dangerous than usual; this may be true, although it is not proved: they maintain also that innocent snakes become at the same time venomous, which is assuredly false. The subject of this memoir is perhaps of all reptiles the most capricious, both as to locality and time of appearance. I make these remarks in the hope of directing a little attention to this interesting though obscure subject. A long series of careful observations would be necessary to prove whether the appearance of reptiles stands in fixed connexion with any meteorological changes; and especially with the electric state of the atmosphere.—*J. W. Slater; Fairfield, June 30, 1845.*

Anecdote of Pike. As I was walking by a piece of water on Christmas-day, 1843, I saw a pike lashing his tail out of water. On getting it out, I found two pike, of about a pound weight each, the head of one being entirely within the other's mouth, the snout coming out at the gills of the fish that was holding it. They seemed nearly exhausted with their exertions. Once during the spawning season, I hooked a pike; when getting it out in the landing-net, another pike followed it voluntarily into the net. The fish that was hooked was about 3 lbs., and its mate 2 lbs.—*E. J. Stanley; Alderley Park, Cheshire.*

Capture of the Fishing-frog. A specimen of the fishing-frog (*Lophius piscatorius*) was taken the other day by a man whilst shrimping on Hessle Sand, in the Humber. *Bentley Locke; Hessle Mount, Hull, May 9, 1845.*

Migrations of Salmon. About a year and a half ago, Lord Glenlyon, with the praiseworthy motive of deciding the long-agitated question as to whether the salmon, after returning to the ocean from its spawning-ground, again resought the same river on another return of the season, caused a number of *kelts*, or fowl fish, to be caught and marked, by attaching a label, by a ring, to what is called the *dead* fin of each. Last summer a number of these were captured on various stations in the Tay, but, so far as we can learn, none in the Earn; on Tuesday last, another was caught at the Rashbush, a fishing-ground below Inchyra. This fish was in excellent condition, and weighed 21 lbs. The label bore as follows:—“Lord Glenlyon, Dunkeld, No. 129.” *Perth Advertiser.*

Carnivorous propensity of Snails. In former numbers (Zool. 201, 257, 943) have been given several instances, proving that snails feed on Coleoptera, and are thus far akin to animals that live on prey. The object of the present notice is to record an instance where beetles, *not* snails, were the aggressors; as also, to state some grounds for believing that snails are *really* carnivorous. While entomologizing a week or two ago, I found under a stone a moderately sized black slug (*Limax ater*), that, judging from its shrivelled appearance, had been dead for some time. This I found to be an object of considerable attention on the part of the larva of *Omaseus melanarius*? (the most common species near) and five of *Tachinus apicalis*. The larva was placed on the one side, and the Tachini were huddled together on the other. They had made an incision about the breast, where the viscera protruded, and were manifestly imbibing the delicacies thus presented, when the unwelcome intrusion of light scattered the “black

banditti." It may be questioned whether the snail were a "stalled" one, slaughtered for the occasion, or merely a piece of carrion, which had drawn from far those lovers of the tainted air. The *Omaseus* I think might be quite capable of such doings, as I once saw its ally, *Platysma niger*, engaged in dragging a portion of an earth-worm, which had all the marks of being recently mangled. Thus far my observations on the retributive justice dealt out by beetles on what we must now regard as one of their natural enemies. Some of the *Silphidæ* (*Oiceoptoma dispar* and *Silpha quadripunctata*) are known to relish snails as food, but I never before was witness to an analogous fact. On the other hand, that the black slug, at least, is carnivorous, even to the relishing a piece of good beef, I have had ocular proof. About a year since I brought home two slugs in my botanical box, along with some plants; and being desirous of making some experiments as to their habits, I put them, together with the plants, in a vessel in the dark part of a room. They were neglected nearly a fortnight, during which time the plants were either consumed, or, as they were wet, reduced to a half-decayed state. On recurring to the slugs, they were found dozing in a corner, under the plants, in the posture assumed in their hybernacula. As I noted every circumstance as it occurred, I shall give a particular account of what took place. For some time after being brought out to the light, they showed no other motions than merely rocking to and fro, as if unwilling to be aroused. By the application of a little water and the fire, I succeeded, however, in stimulating their sluggish frames: they began to show their tentacula, and to crawl. Having heard something of their feats in devouring earth-worms, I thought perhaps they might have a relish for something more highly organized than a plant, particularly as they had been subjected to rather a long fast. I accordingly provided them with a piece of raw beef, at the bottom of a jug, in which I had them placed. Having relapsed into their torpor, on the side of the vessel opposite to the meat, I set them aside for a little. When I resumed the post of observation some time after, which was about half-past 6, one of them, the larger, had already attacked the beef, having a part of his head beneath it, evidently employed in eating; while the other, with half-protruded tentacula, was gliding forward in a direct line, and nearly approaching it. He used no ceremony, but as if it was common fare, applied his lips to the beef and commenced feeding. This he did by opening a mouth furnished with ridges outside and interiorly, like the puckerings of a sober dame's lips; and after sucking in the meat, eating and mumbling it after the fashion of the same toothless dame. It was very eager, never once leaving off. It began at one part and ate straight along, shifting its head progressively at each fresh mouthful. It thus happens that leaves fed on by slugs are cut all along the edges. It was a clean eater, never expatiating in a nibble here and there. Its tentacula, while thus busily engaged, continued half protruded, one occasionally running out to its full length; and only one of its breathing holes, that on the right side, was kept open. Once or twice, while feeding, it turned up the front of its mouth, which was moistened with blood, showing an interior process, perhaps its tooth; being provided with one in the upper jaw. On these occasions it would give one or two gapes, as if licking its lips and cleansing them for new sallies. The other snail fed in a similar manner, till being interrupted by the edge of the jug, it left off and took a little repose. The other, still feeding, approached it, but though it advanced till skin touched skin, the only concern manifested for this rude contact, was its sheathing all its tentacula, excepting one that remained sentry, long and unicorn-like. Thus it lay for a time, till at length it began to move, feeling its way round with an abundance of caution,

and sundry retractile and expansile evolutions of its guiding organs. I observed of the two, that although they touched objects readily with their tentacula, one never allowed the long prime tentacula to touch those of the other; drawing them in when approximating, when they could, as it were, if the popular credence be true, gaze into each other's eyes. It made a tour of the jug, while the other, as if insensible of its absence, continued eating on. At length it also paused, twenty minutes after it had commenced, and set forth on an excursion. By this time the other and larger one had returned to the repast; not deliberating for the onset. The other also wheeled, and came forward as before; but by moving the mass, so exceedingly discomposed the elder one, as by way of eminence I shall term it, that he drew himself together most sulkily, squatting like an old rabbit, flat upon the ground, with one aperture open to give notice, as it were, of his friend's voracious impropriety. When the floor was struck, the younger one retracted his tentacula and left off in alarm, but speedily resumed operations. Some individuals of the human species make much noise in their feeding, not so this snail. Silent as the movement of his great foot, I only once or twice heard a snack, as it were, to attest his ardent appetite. About half-past 7 he declared himself satisfied, and laid his head round the other way. He however made another attack before going to bed. He left off at 8 o'clock. His partner all the while maintained his position unaltered. At 9 o'clock both were sleeping fraternally together, separated only by a blade of clover, which, for the sake of variety had been presented to them, their backs turned to the beef. In the evening I put the vessel whence they had been taken into its former place, and put the jug in which they now were, on a shelf above it, about half a foot from the floor. In the morning I found the jug and beef deserted, and the snails nowhere to be seen. On examining, however, their former retreat, I found them at the very bottom of the vessel, concealed under the decaying herbage and withered stalks. The height of each vessel was about four inches and a half. How they directed their way so readily up and down the perpendicular sides, as they had never before been removed, it is not easy to say. Perhaps the odour of the decomposing herbage might lead them back to their late abode. It is thus that in the heat of summer many of the slugs appear to have a place to which they withdraw; as, while they hold their revels at nightfall, few dare to brave the ardour of the solar beams. In proof, also, of its carnivorous predilections, I have been told the following circumstance of the black slug, which, after my own experiment, I do not doubt. An old man near Berwick-upon-Tweed, going out one morning to mow grass, found a black slug devouring, as he supposed, a dead mouse. Being of an inquisitive turn, and wishing to ascertain if it were really thus engaged, he drew the mouse a little back. When he returned in the evening, the mouse was reduced almost to a skeleton, and the snail was still there. So that snails, or at least slugs, not only feed on herbage, devour worms, and enjoy the luxury of a slaughtered companion, but they also aid in removing dead animal matter, not despising it even in its fresh condition, and even seizing live prey, if within their reach and subject to their mastery. An analogous instance occurs in the periwinkles of the London markets (*Littorina littorea*), usually regarded as phytophagous. Many refuse to eat them, assigning as a reason that they are often found adhering to the bodies of drowned seamen cast on shore. They certainly love carrion, as upon dead land animals cast into the sea between tide-marks, they are often found clustered in exceeding numbers, as if gratified with a pabulum congenial to their nature. — *James Hardy; Gateshead, May 29, 1845.*

Carnivorous propensity of Snails. If you should think it worth insertion, I may mention that about a fortnight ago, when fly-fishing, I saw five of the *Limax agrestis* busily devouring a May-fly each, and this in the middle of a large meadow. — *W. O. Newnham ; Chaplain's House, Guy's Hospital.*

Carnivorous propensity of Snails. It is now twelve years since I first noticed, near Penzance, the carnivorous propensities of snails, and I believe the fact was first published by me in the 'Zoologist,' (Zool. 201). I had often been laughed at for the statement, but no sooner had it appeared in print, than it was corroborated by numerous observers. And the wholesale slaughter noticed by my friend Mr. Wollaston, in your May number (Id. 943), is tolerably conclusive on the point. I have observed numerous instances since the commencement of my entomological campaign this spring — sometimes large snails with several small Coleoptera at once in their maw, — but it was only a few days since that I convicted a water-snail of similar atrocity, by netting *Lymnæa stagnalis* with a large larva half eaten, apparently that of a Dyticus. A strange "concatenation accordingly," to find the devourer of that fresh-water shark, the pike (Zool. 200), himself overpowered and devoured by a snail! The *Lymnæa*, I may remark, makes a singular and very audible squeaking noise when taken from the water and handled, I suppose by the expulsion of the water from the shell in contracting. Mrs. Buckland has favoured me with a curious fact, in which this species is implicated, not actively but passively, in the work of mutual destruction which pervades Nature, and which argues considerable anatomical knowledge in the heron. "After a great flood at Otmoor, I found a vast number of *Lymnæa stagnalis* left by the retiring waters: every shell had been robbed of its inhabitant by the herons. The shells lay in little heaps of five or six, accompanied by the dung of the birds: they were all broken in the same manner," (by being pierced at that point of the spire where the muscular attachment takes place), "evincing much dexterity in the devourers, for by breaking them in this way only, could the animal be completely taken out. The *Paludina vivipara* shells were also emptied, but unbroken."—*Frederick Holme ; C. C. C. Oxford.*

Fresh-water Shells in Cornwall. Having lately found in Cornwall a few land and fresh-water shells, which have not as yet been noticed as occurring in this county, I have been induced to forward a list of them to you, hoping that they may find a place in a future number of 'The Zoologist.' The Fauna of a corner of our island, such as Cornwall, must always be interesting to those who study geographical distribution, and it will, of course, be more useful, in proportion as it becomes more complete. The study of Natural History in this part of England, has been greatly facilitated by Mr. Couch's valuable work, now complete. Perhaps some other of your correspondents will furnish lists of land and fresh-water shells found in their respective neighbourhoods. The following is the list of those shells not mentioned in Mr. Couch's Fauna which have come under my observation.

<i>Arion hortensis</i>	<i>Helix aculeata</i>	<i>Vertigo substriata</i>
<i>Limax agrestis</i>	<i>Zonites nitidulus</i>	<i>Planorbis albus</i>
<i>maximus</i>	<i>lucidus</i>	<i>imbricatus</i>
<i>Cyclas lacustris</i>	<i>excavatus</i>	<i>Pisidium pusillum</i>
<i>Helix fulva</i>	<i>purus</i>	<i>pulchellum</i>

I believe also that *Helix pulchella* has been found by Mr. Peach. In a recent excursion to the coast near Falmouth, I found *Kellia suborbicularis* and *rubra*, which I do not find mentioned in Mr. Couch's valuable Fauna. I suppose the notice of them

was omitted by accident, as the latter species is mentioned incidentally, when speaking of *Modiolus minutus*. The *Cyclas* above named I found in a small pool close to the church of St. Erme, near Truro. They were of larger size and more oblong in shape than those I obtained near Cambridge, nor do they agree so well with the beautiful figure of the shell in Turton's 'British Bivalves.' The pool had dried up a few days before, and some dead shells on the surface of the mud betrayed the survivors. When I first put them into water they were very lively, and immediately began to climb the sides of the glass. One of them also commenced crawling on the under surface of the water. Its foot was now spread out very widely, after the fashion of the *Limnæada*; and, while preparing for its exploit, it was apparently kept near the surface by a minute thread fastened to the sides of the glass. When it had left the side, its foot appeared to be depressed in the middle, so as to act as a kind of boat. I shook the tumbler, so as to fill the little vessel with water, but to my surprize it sunk, *not suddenly*, but *gradually*, as if it were lowering itself by a thread attached to the surface of the water. Under ordinary circumstances they always sunk directly, even when they had air within the shell, so that their specific gravity must be greater than that of the water. They also appeared to *give out* a quantity of glutinous matter wherever they went; so much so, that in about half an hour seven or eight were entangled and tied together by each others' trailing threads. After the first three hours I did not notice so much of this glutinous matter. Perhaps, if I might be so bold as to suggest it, a part of the animal's economy induces and assists them to secrete this matter in greater quantities than usual, when deprived of water for any considerable length of time, as these had been. And it appears to me quite possible that this may conduce to the animal's preservation under circumstances so untoward. This may appear to many a much less curious circumstance than, I confess, it appears to me. — *Robt. L. King; Grammar School, Truro, June 9, 1845.*

Cocoon of the Horse-leech. It appears that the body which Mr. Bowerbank, in a paper read before the Microscopical Society, described as a new genus of fresh-water sponge, under the name of *Stomatispongia pulchella* (Zool. 1003), turns out to be the cocoon of the horse-leech (*Hirudo sanguisuga*). Mr. Bowerbank's attention having been called to the mistake by Professor Henslow, he gives the following amended description in the June number of the 'Annals and Magazine of Natural History.'— "It is of an oval form, and rarely exceeds half an inch in length from one extremity of the fibre to the other, and the central case is about four lines long. The fibres are of a greenish amber colour, the case partaking of the same hue, but much deepened by its greater degree of density. When carefully denuded of the surrounding fibre, the case is found to be divided into numerous nearly equal-sized polygonal areas, which are most frequently five- or six-sided. These are produced by a raised network of fibrous structure, partly imbedded in the surface. From the angles of these reticulations the surrounding open fibrous structure springs, which preserves the same form of reticulation as that of the parent surface. The case has frequently a deep sinus which extends entirely across it, causing it to assume very much the same form as a short, swollen grain of wheat; and under these circumstances the mammæ are found opposed to each other in the direction of, what is then, the short axis of the case, and are situated just without the outer edge of the sinus. When there is no depression of this

body, the mamnæ are found opposed to each other at the ends of the cocoon. The sinus is produced by a partial state of collapse of the body of the cocoon, caused apparently by the gradual diminution of its gelatinous contents. The cocoon in almost every specimen that I have opened, was found to contain a dense opaline gelatinous matter. When removed it readily separates in water into flaky masses, which, when viewed by transmitted light, with a power of 500 linear, appeared to be composed of exceedingly minute granules. Upon carefully examining the gelatinous contents of several specimens which I opened, I found in two of them small vesicular bodies, which have every appearance of being the eggs or embryos of the animal. In the gelatinous matter of one specimen I found ten of these bodies, and in another six of them, apparently in different stages of development. They are usually pyriform, and have frequently a deposit of minute, dark, granulated matter towards the smaller end. In both cases in which these bodies occurred, they were found in greater quantities at one end of the cocoon than at the other. The network which covers the outer surface of the body of the cocoon and bounds the deeply sunken areas of its interstices, rises from its surface in the form of a sharp edge, and as the free fibres are given off at the angles where the imbedded fibres meet, they naturally at this point assume the form of a three-winged fibre, and this form they maintain throughout the whole of their length. Every one is familiar with the horny cases surrounding the ova of certain fishes, and of the finely-spun horny threads with which they are fixed to the stems of Gorgonias and other bodies; but in these cases the fibre is simple and cylindrical, as might naturally be expected, while in the fibrous tissue of this singular cocoon it is three-winged, and anastomoses as regularly and as beautifully as the fibres of the horny sponges of commerce. How the animal produces this beautiful and complex structure, is a question which it will be exceedingly interesting hereafter to solve. The coriaceous substance of the body is of about the thickness of a stout sheet of writing-paper, the centres of the areas being much thinner than the other parts. When a section of one of its thickest portions at right angles to its outer surface was examined by transmitted light with a power of 94 linear, it appeared to be composed of four or five layers of nearly equal thickness. When the exterior surface was examined under similar circumstances, with a power of 1000 linear, numerous cytoblastic vesicles were observed irregularly dispersed over its surface, but without the appearance of nuclei; but, on the contrary, when the inner surface was thus examined, it was seen to be nearly uniformly covered with well-defined nucleated cytoblasts, the nuclei in many cases being angular. From the laminated structure exhibited, it is probable that the production of tessellated cellular tissue is not continuous, but that it occurs at intervals, and is produced by a series of efforts, in a similar manner to that in which the successive layers of cartilaginous substance are produced by *Helix aspersa* when about to extend the lip of its shell in the spring of the year. But there is an essential difference in the circumstances of the two cases. In the shell the cytoblasts are developed and their peculiar office performed while in contact with the living body whence they emanate, while in the cocoon this cannot well be the case, as the animal immediately separates itself from it. Their presence and development therefore appear to indicate that vitality to a certain degree remains in the horny substance of the cocoon, and which vitality may probably continue in action until the proper office of the cocoon has been attained. Dr. Johnson, in treating of *Hirudo vulgaris*, describes the singular mode of the production of the cocoon of that species in this manner. When the animal is about to produce one of these bodies, it is observed to be greatly contracted

both above and below the uterus, a distension then takes place between these constrictions, and a surrounding membranous structure is thrown off, which becomes of a milky white colour; into this the animal forces with some effort the whole contents of the uterus. This done, it elongates the anterior portion of the body, and withdraws its head as from a collar. After the animal has firmly fixed it to some substance, it fashions it with its mouth until it presents an oval form. This description enables us in some measure to account for the mammæform appendages of the horny case of the species under consideration, and which differs somewhat in the structure of these parts from all the cocoons described by Dr. Johnson, in which, instead of the protuberant mammæ, we find simply circular orifices; but it does not in any shape enlighten us upon the mode of the construction of the extraordinary and complex spongy tissue which surrounds our species of cocoon. The mammæform ends of the cocoon are of an oval form, and project in about an equal degree beyond the inner and outer surfaces previously to their becoming perforated, and the length of the oval is somewhat increased by a considerable thickening of the substance of the body immediately surrounding them. The communication between the inner and outer surfaces appears to be effected in a very singular manner. In one case where I made a section of one of these organs at right angles to the natural surfaces of the body, it appeared perfectly solid; in another a small cavity only existed near the inner surface of the case; but in a third specimen the appearance presented was of an exceedingly singular description. The outer end of this organ had a small irregular perforation which led into an ovoid cavity immediately beneath, and the long axis of which was in a diagonal direction as regards the axis of the body of the cocoon, and the inner surface of this cavity appeared to be furnished with three or four ribs. Upon opening the cocoon I found that the opposite end of the mamma had disappeared, and in lieu of solid substance there was a large dome-shaped cavity, the top of which was separated from the inner end of the ovoid cavity in the external end by a very thin layer of horny structure: and indeed at one spot there were appearances as if a minute communication existed between them, but from the oblique position of the ovoid cavity I could not determine this with certainty. The other extremity of the cocoon did not exhibit precisely the same appearances; in this case the entrance to the ovoid cavity was much larger on the outer surface, while on the inner one the entrance to the large cavity was closed by an apparently stout membrane.”—p. 302.

Microscopical Society of London, June 18, 1845. — Thos. Bell, Esq., F.R.S., President, in the chair. Read, a paper by George Shadbolt, jun., Esq., ‘On a British Species of Ixodes found upon Cattle.’ The insects forming the subject of the present paper, were found on some cows belonging to a farmer residing at Chingford, Essex, on the borders of Epping-forest. They are known to the country people by the name of the ‘tick,’ but they are aware that they differ from the insects of that name which infest sheep and goats. They are found upon cattle, attacking all parts indiscriminately, and causing much irritation and annoyance to them. They have been found to the number of several hundreds on a single cow, and have also been known to attack even human subjects, though this is not common: and although it is probable that they infest other animals, the author has seen them only on cows. They do not appear to breed on the animals infested, but are produced in the forest into which the

cattle are sent to graze, and which appear to become infested with them from their crawling up their legs while feeding. After having attached themselves by means of a very curious apparatus with which they are furnished, they gorge themselves with blood, and the abdomen increases in size from about the tenth of an inch, until they become as large as a small bean. When fully gorged they fall off, and the author was not able to ascertain their further progress. The form of this insect is oval; it has eight legs, in which particular it differs from the Brazilian species described by Mr. Busk in a former paper read to the Society, these last having but six. These legs are attached to the anterior half of the trunk, and consist of seven joints, the tarsi being terminated by a species of webbed foot, capable of being folded together, and furnished with two recurved claws. The oral apparatus by which it attaches itself is exceedingly interesting. It consists of two palpi, serving as a kind of sheath to the other parts when inactive, two jointed mandibles, and a barbed or hooked labium. Specimens of this and other species were afterwards exhibited. Read also a paper by H. Deane, Esq., 'On the existence of Fossil Xanthidia in the Chalk.' After mentioning that the occurrence of Xanthidia in a fossil state in any other situation than in the flint-nodules of the chalk had not hitherto been observed, and consequently that great doubt existed whether these fossils were really independent animal existences, or only parts of some other creature; Mr. Deane stated that there is a greyish kind of chalk, having no flints, but containing quantities of nodules of iron pyrites, which juts into the sea between Dover and Folkestone, forming the beach for some distance. Upon exposing a portion of this to the action of hydrochloric acid, and examining microscopically the insoluble sediment, bodies similar to, if not identical with, the Xanthidia in flints were exposed to view. Several species were clearly to be recognized, together with casts of Polythalamia, and other bodies frequently found in flints. The Society then adjourned until October next.—*J. W.*

Capture of Ægeria Sphegiformis. A female specimen in beautiful condition, of this rare "clear-wing," was taken by my brother on Wednesday last, at Langwith, near York, and which he has kindly added to my collection. — *Robert Cook*; 30, Colliergate, York, July 4, 1845.

Entomological Pins. It would be conferring no inconsiderable benefit on collectors, if 'The Zoologist' would make known that there are such things as *entomological pins*, of which entomologists in the country seem quite unaware, for nine tenths of the insects I have received this season, have been pierced with skewers. The best pins are the solid-headed ones, made and sold by Edleston & Co., Crown Court, Cheapside, London. Our country friends also have mostly to learn that in order to set a Lepidopterous insect well, it must be pierced in the centre of the thorax, and the pin kept upright. These may appear simple matters, but the want of attention thereto often spoils the appearance of a drawer, and what is worth doing at all, is worth doing well. *J. W. Douglas*; 6, Grenville Terrace, Coburg Road, Kent Road, May 21, 1845.

Lophopteryx Carmelita. One was taken by Mr. Joseph Standish, at Birchwood, in April, sitting on the trunk of a fir-tree.—*Id.*

Cleora pictaria. One taken by Mr. Benjamin Standish, on the palings at Dartford-heath, in April.—*Id.*

Capture of Stauropus Fagi at Hammersmith. I was not a little surprized and pleased at meeting with a fine female specimen of this rare insect, resting on the trunk of a small plum-tree, in a garden adjoining my own at Hammersmith, yesterday morning, and within a dozen yards of my own house. I have been twice down to Blackpark this spring, in search of it, without success; so to find it so close at home was very remarkable. It is quite possible it might have come from Lord Holland's park, which is within half a mile. I certainly never expected to take a *lobster* in a *market-gardener's ground*.—*Samuel Stevens*; 38, *King St., Covent Garden, June 18, 1845.*

Capture of Hymenopterous and Coleopterous Insects in Hampshire. During an entomological excursion in Hampshire on the 21st and two following days of the present month, I made a few observations and captures perhaps worth recording, as they may furnish data for the use of others: and the time of an insect's appearance is almost as necessary to be known as its locality; it constitutes, in fact, an essential part of an insect's history. A want of attention to this particular detracts very much from the usefulness of some of our best works on British insects. Thus, Shuckard's 'Fossorial Hymenoptera' is very incomplete in this necessary information.

Hymenoptera.

Miscus campestris, abundant.

Tachytes unicolor, 3, male and female.

Miscophus bicolor, 1 female.

Crabro citratus, 2, male and female.

tibialis.

Eumenes atricornis, 18, male and female.

Andrena Rosæ, 12, male and female.

I make no mention of a host of both Coleoptera and Hymenoptera, of more common occurrence. *Tachytes unicolor* is rare in cabinets, and has only been taken at Black Gang Chine, except by myself, on this and one previous occasion. *Crabro citratus* was first described by Shuckard, and is rare. *Eumenes* was by no means uncommon. I found them flying about the turf-wall enclosures, settling occasionally on the flowers of the heath. *Andrena fulvescens*.—Of this bee I found an extensive colony, occupying upwards of twenty yards of a hard-trodden gravel pathway, at the corner of a common. There were hundreds of their little hillocks thrown up round the entrance to their burrows; and the bees were so multitudinous, that their united hum resembled that of a hive of bees. *Nomada ferruginata* is parasitic upon this species of *Andrena*. *Elater ephippium*.—I first discovered the locality of this insect in 1841: it is a spot of very unpromising aspect to a collector. In the middle of an extensive moor are two fields enclosed; and at a short distance from the hedge, facing the south-east, are three stunted white-thorn bushes, which put forth in May a few shoots of flowers; at the time when these are dying off, and the bushes are infested with Aphides, and the leaves covered with honey-dew, the *Elater* is to be met with. I cannot imagine whence they come, unless it be out of the decaying stumps of the white-thorns, as there are no old trees in the vicinity. At the distance of half a mile is a young plantation of fir, and there are also young oak trees in the hedge enclosing the field before mentioned. I have searched in vain on the more healthy whitethorns in the vicinity.—*Frederick Smith*: 5, *High St., Newington Butts, June 30, 1845.*

Occurrence of Drypta emarginata and Lymnæum nigropiceum in the Isle of Wight. The Rev. Mr. Dawson, of Ventnor, informs me that he has met with these rare Coleoptera, during the present summer, in his own neighbourhood: of the *Drypta*, only

Andrena fulvescens, male and female.

Panurgus ursinus.

Nomada ferruginata, male and female.

—
Coleoptera.

Anomala Frischii.

Elater ephippium, 14.

Otiorynchus Ligustici, 3, in gravel-pits.

two specimens, but the *Lymnæum* in some abundance. Mr. Dawson is engaged in a careful examination of the coast, with a view of ascertaining its productions, as far as relates to Coleoptera; and he has promised to hand me an account of the results, for publication in 'The Zoologist.'—*Edward Newman.*

British Dragon-flies. M. Selys, author of a monograph on the Libellulites of Europe, is now in London, engaged in examining the cabinets of the London collectors, for the purpose of correctly ascertaining under what names the various species of *Libellula* have been described by British entomologists, prior to the publication of a second edition of his work. In prosecuting his researches, he has found species hitherto unnoticed as British, but which have been characterized on the continent: and has detected many very important errors in nomenclature. As illustrations may be mentioned *Libellula vulgata* and *L. rubicunda* of our cabinets, which he asserts are distinct from *L. vulgata* and *L. rubicunda* of Linneus, but still are described species, the former being *L. striolata* of Charpentier, and the latter *L. dubia* of Vanderlinden. *Sympetrum rufostigma*, described by myself in the 'Entomological Magazine,' and subsequently by M. Selys under the name of *L. Roeselii*, he considers identical with *L. sanguinea*, described by Muller in the 'Nova Acta Nat. Cur.' for the year 1767, vol. iii. p. 122. If these views prove correct, the names of all these species must necessarily be changed. I hope to receive M. Selys' work as soon as it appears, and purpose translating and reprinting his descriptions, synonyms and observations, so far as they relate to British species, incorporating any observations of my own that may appear needful. We have long wanted a monograph of these highly beautiful insects; and although I have often made the attempt in years that are past, I have never possessed the means of making anything approaching to a complete descriptive list of our species. 'The Zoologist' seems to offer a more suitable medium for such a monograph than any we have hitherto possessed, since no other magazine has been so extensively circulated among our entomologists. I trust that my subscribers will assist me in the projected undertaking, by the loan of specimens and the record of localities.—*Id.*

Curious Fact relating to the House-fly. Perhaps the following observation may throw some light on the curious fact related of the house-fly (*Zool.* 948). This morning, on going to a window, I observed a house-fly on the outside of the glass, with a drop of yellowish fluid, about half the size of its head, attached to its proboscis. I immediately procured a pocket lens, and with it watched the whole of the proceeding. In a short time the trunk was partly protruded, and the drop pretty rapidly absorbed: in a few seconds the proboscis was withdrawn and the drop reappeared, but not to the same size. This was repeated four times, at the first and last the drop was larger than at the intermediate times. I noticed a quivering motion of the proboscis occasionally. Immediately on absorbing the drop the fourth time, the insect flew away. The drop was only visible when the trunk was retracted, and when it was protruded the drop entirely disappeared. In answer to the observations at p. 948, I should say that from the manner in which the drop reflected the light, and its colour, that it was a real drop of fluid, and not a bubble; especially as I observed one or two black particles floating about in it. As to the health of the fly, it is difficult to judge; but as it flew away briskly, I should say it was not suffering from any very severe indisposition. It took one or two quick short steps while the operation was going on. There is perhaps no insect that may be so readily observed, and of which so little is known, as the common fly; if, therefore, the above should be deemed worth inserting, it would give me great pleasure to be able to contribute my mite to your instructive pages. I

may perhaps be allowed to say, that I have on many occasions observed a globule of fluid at a fly's mouth, although until reading Mr. Lewis's paper, I never gave it any attention.—*G. Guyon; Richmond, Surrey, June 28, 1845.*

Curious Fact related of the House-fly. I have often seen the common house-fly playing with the drop of its nose, as mentioned by your correspondent (Zool. 948), and have read of one that did so after he had been drinking pretty freely of gooseberry-wine. May not inability to withdraw the drop of fluid in the autumn, be the cause of so many flies, at that season, becoming attached to the glass of our windows by the extremity of the proboscis?—*Alfred Luxford; Kennington Lane, July 10, 1845.*

*Larvæ and Pupæ of *Æstrus Cervi*.* Mr. Bracy Clark has just brought me several specimens of the larva and two of the pupa of this insect, which, I believe, is totally unknown in the perfect state. As the pupæ appear to be alive and healthy, I trust that with care they may be reared. The larvæ were found in the throat, just at the commencement of the œsophagus, in deer that had been killed for venison. Full particulars will be given as soon as they can be ascertained.—*E. Newman; July 11, 1845.*

Proceedings of the British Association for the Advancement of Science.

(From the Athenæum, No. 922, dated June 28, 1845).

SECTION D.—ZOOLOGY AND BOTANY.

DR. RICHARDSON read a Report, which had been called for by the Section, 'On the Ichthyology of China.' Till within a recent period, little was known of Chinese fishes. Linnæus was acquainted with about a score of Japanese fishes; and a few were afterwards added to the list by Langsdorff, who accompanied the Russian admiral, Knesenstiern, in his voyage to the Isles of Japan and the South Sea. With these exceptions, the fish of the eastern coasts of Asia, from the Sea of Ochotsk down to Cochin China, were, till very recently, known to European naturalists only from Chinese and Japanese drawings, several collections of which are to be found in the Paris and British libraries. Yet the fish of the coasts of China are abundant, and the fisheries extensive and important. Materials for the description of these fishes were not wanting. Mr. John Reeves had beautiful coloured drawings, mostly of the size of life, made of no fewer than 340 species of fish which are brought to the markets in Canton. Copies of these drawings now exist in the British Museum. Some fishes have been recently sent from Chusan; other Chinese fishes have been described in the account of the voyage of the Sulphur. A collection of 100 fishes made at Canton exists in the museum of the Philosophical Society of Cambridge. From these and other recent sources, the present report was drawn up. The author concluded from his researches that the existence of chains of islands or of continuous coast having an east and west tendency promotes the range of a species or of a group of species. Thus, to take the intertropical zone of the ocean, we find very many fish common to the Red Sea, the coasts of Madagascar, the Mauritius, the Indian Ocean, the southern parts of China, the Philippines, the whole Malay Archipelago, the north coasts of Australia, and the entire range of Polynesia, including the Sandwich Islands. In the generic forms of its fresh-water fish, China agrees closely with the peninsula of India. If we could suppose that the extensive belt above alluded to, enclosing more than two-thirds of the circum-

ference of the globe, to be suddenly elevated, we should find the remains of fish scattered over it to be everywhere very nearly alike,—the species having a local distribution being comparatively few and unimportant. These spoils of fish would, of course, in accordance with the observation of Prof. E. Forbes, be associated with very various assemblages of mollusks and other marine animals, according to the depth at which the deposit took place. This was an important fact for the science of Geology.

MR. W. THOMPSON expressed his surprize at the number and apparent completeness of the lists given by Dr. Richardson.—Mr. OGILBY thought the views of the reporter of the greatest importance in a geological point of view. It opened up a new field for both zoological and palæontological inquiry. As far as the geographical distribution of fishes was concerned, those of the freshwater offered the greatest facility for study, as they could not pass from one point to another, on account of the ocean. The BISHOP of NORWICH related several facts, showing that the spawn of fishes may be conveyed from one country to another over the sea. He knew an instance in which the ova of the pike were deposited in the thatch of a cottage, and after having remained there for years, on the thatch being thrown into a dry ditch, which afterwards became filled with rain, young pike appeared.—Dr. RICHARDSON stated that, in many zones of the earth, the same fishes appeared in the same parallels. It was not so over the Atlantic, where a deep sea intervened. The two sides of the Atlantic contained different fishes.

The Secretary, Mr. WOLLASTON, read a paper ‘On the Periodical Appearance of certain Birds in North Wales.’

Dr. MACDONALD read a paper ‘On the Unity of Organization as exhibited in the Skeletons of Animals.’

The SECRETARY read a paper from Mr. Bonomi, ‘On a gigantic Bird sculptured on the Tomb of an Officer of the Household of Pharaoh.’ “In the gallery of organic remains in the British Museum, are two large slabs of the new red sandstone formation, on which are impressed the footsteps or tracks of birds of various sizes, apparently of the stork species. These geological specimens were obtained through the agency of Dr. Mantell from Dr. Deane of Massachusetts, by whom they were discovered in a quarry near Turner’s Falls. There have also been discovered by Capt. Flinders, on the south coast of New Holland, in King George’s Bay, some very large nests measuring twenty-six feet in circumference and thirty-two inches in height; resembling, in dimensions, some that are described by Capt. Cook, as seen by him on the north-east coast of the same island, about 15° south latitude. It would appear, by some communications made to the editor of the ‘Athenæum,’ that Prof. Hitchcock of Massachusetts had suggested that these colossal nests belonged to the Moa, or gigantic bird of New Zealand; of which several species have been determined by Prof. Owen, from bones sent to him from New Zealand, where the race is now extinct, but possibly at the present time inhabiting the warmer climate of New Holland, in which place both Capt. Cook, and recently Capt. Flinders, discovered these large nests. Between the years 1821 and 1823, Mr. James Burton discovered on the west coast or Egyptian side of the Red Sea, opposite the peninsula of Mount Sinai, at a place called the Gebel Ezzeit, where for a considerable distance the margin of the sea is inaccessible from the Desert, three colossal nests within the space of one mile. These nests were not in an equal state of preservation; but, from one more perfect than the others, he judged them to be about fifteen feet in height, or, as he observed, the height of a camel and its rider. These nests were composed of a mass of heterogeneous materials, piled up

in the form of a cone, and sufficiently well put together to insure adequate solidity. The diameter of the cone at its base was estimated as nearly equal to its height, and the apex, which terminated in a slight concavity, measured about two feet six inches, or three feet in diameter. The materials of which the great mass was composed were sticks and weeds, fragments of wreck, and the bones of fishes; but in one was found the thorax of a man, a silver watch made by George Prior, a London watchmaker of the last century, celebrated throughout the East, and in the nest or basin at the apex of the cone, some pieces of woollen cloth and an old shoe. That these nests had been but recently constructed was sufficiently evident from the shoe and watch of the shipwrecked pilgrim, whose tattered clothes and whitened bones were found at no great distance; but of what genus or species had been the architect and occupant of the structure Mr. Burton could not, from his own observation, determine. From the accounts of the Arabs, however, it was presumed that these nests had been occupied by remarkably large birds of the stork kind, which had deserted the coast but a short time previous to Mr. Burton's visit. To these facts," said Mr. Bonomi, "I beg to add the following remarks:—Among the most ancient records of the primeval civilization of the human race that have come down to us, there is described, in the language the most universally intelligible, a gigantic stork, bearing, with respect to a man of ordinary dimensions, the proportions exhibited in the drawing before you, which is faithfully copied from the original document. It is a bird of white plumage, straight and large beak, long feathers in the tail; the male bird has a tuft at the back of the head, and another at the breast: its habits apparently gregarious. This very remarkable painted basso-relievo is sculptured on the wall, in the tomb of an officer of the household of Pharaoh Shufu (the Suphis of the Greeks), a monarch of the fourth dynasty, who reigned over Egypt, while yet a great part of the Delta was intersected by lakes overgrown with papyrus, — while yet the smaller ramifications of the parent stream were inhabited by the crocodile and hippopotamos, — while yet, as it would seem, that favoured land had not been visited by calamity, nor the arts of peace disturbed by war, so the sculpture in these tombs intimates, for there is neither horse nor instrument of war in any one of these tombs. At that period, the period of the building of the great pyramid, which, according to some writers on Egyptian matters, was in the year 2100 B.C., which, on good authority, is the 240th year of the Deluge, this gigantic stork was an inhabitant of the Delta, or its immediate vicinity; for, as these very interesting documents relate, it was occasionally entrapped by the peasantry of the Delta, and brought, with other wild animals, as matters of curiosity, to the great landholders or farmers of the products of the Nile, — of which circumstance this painted sculpture is a representation, the catching of fish and birds, which in these days occupied a large portion of the inhabitants. The birds and fish were salted. That this document gives no exaggerated account of the bird may be presumed from the just proportion that the quadrupeds, in the same picture, bear to the men who are leading them; and, from the absence of any representation of these birds in the less ancient monuments of Egypt, it may also be reasonably conjectured they disappeared soon after the period of the erection of these tombs. With respect to the relation these facts bear to each other, I beg to remark that the colossal nests of Capts. Cook and Flinders, and also those of Mr. James Burton, were all on the sea-shore, and all of those about an equal distance from the equator. But whether the Egyptian birds, as described in those very ancient sculptures, bear any analogy to those recorded in the last pages of the great stone book of nature (the new red sandstone formation), or whether they bear

analogy to any of the species determined by Prof. Owen from the New Zealand fossils, I am not qualified to say, nor is it indeed the object of this paper to discuss; the intention of which being rather to bring together these facts, and to associate them with that recorded at Gezah, in order to call the attention of those who have opportunity of making further research into this interesting matter."

Mr. H. STRICKLAND remarked, that the instances of gigantic birds, both recent and fossil, enumerated by M. Bonomi, though interesting in themselves, had little or no mutual connexion. The artists of ancient Egypt were wont to set the laws of perspective and proportion at defiance, so that the fact of the birds here represented being taller than the men who were leading them, by no means implied the former existence of colossal birds in Egypt. Indeed, in this very painting, the foot of a human figure is introduced, probably that of a prince or hero, whose proportions are as much larger than those of the birds in question, as the other human figures are smaller. He considered the birds here figured to be either storks, or demoiselle cranes, or egrets, all of which are common in Egypt. The gigantic nests found by Mr. Burton on the coast of the Red Sea deserved further examination; but the size of a nest by no means implied that the bird which formed it was large also, for the Australian Megapodius, a bird not larger than a fowl, makes a nest of enormous proportions.

Mr. THOMPSON read a communication, from Messrs. Alder and Hancock, 'On a New Genus of Mollusca Nudibranchiata.' This new genus is founded on the Tritonia arborescens of authors and its allies, which are distinguished from the true Tritonia (*T. Hombergii*, &c.) by the form of their tentacula, and the free, arborescent nature of their branchiæ. These characters alone induced the authors to consider them generically distinct, before they had an opportunity of examining their internal structure, in which such important differences in the digestive organs were exhibited, as to show that this new genus—for which the name of Dendronotus is proposed—should be removed from the family Dorididæ to that of Eolididæ, to be placed first in order, as the connecting link between these two families.

The paper was illustrated by drawings from the work by Messrs. Alder and Hancock, on the British Nudibranchiate Mollusca, just published by the Ray Society.

Prof. ALLMAN remarked, that this paper was important, as it more clearly than ever demonstrated the errors into which M. de Quaterfages had fallen with regard to this family.

Singular act performed by a Sheep. Crossing Durdham-down to-day with a friend, we observed a sickly-looking sheep alternately (as it seemed to us) protruding and drawing in its tongue. We watched this steadily for about half a minute or more, till we saw what we had fancied was its tongue drop out of its mouth, when the sheep went on feeding in its usual quick-nibbling way. Of course we went up to see this seeming tongue, and found it to be a piece of old flat iron. Is this a common occurrence? The sheep was evidently a diseased animal, and from the way in which it was mouthing the iron, must have tasted its flavour. Now the rust or oxide of iron is, I believe, a common and powerful remedy in scorbutic and cutaneous diseases, such as the poor animal was suffering under; and this makes me think that the sheep was, in fact, "taking medicine." At any rate the fact appears worth recording, and may possibly afford a useful hint to the shepherd.—*W. S. Lewis; St. Michael's Hill, Bristol, June 23, 1845.*

*A Catalogue of Birds observed in South-eastern Durham, and in North-western Cleveland.** By JOHN HOGG, Esq., M.A., F.R.S., F.L.S., &c.

THIS paper is a *portion* of a memoir which was read to the zoological section of the British Association for the Advancement of Science, at York, September 26, 1844. The *remainder* of the memoir, relating principally to the *classification* of birds, will shortly appear in an enlarged form. As a sketch of the author's arrangement of the birds included herein, has been published in the 'Report of the Fourteenth Meeting of the British Association,' 1845, at pp. 59 and 60, it was considered unnecessary to reinsert it in the present paper.

ACCURATE reports of *facts* in any branch of knowledge or of science, must be at least always *useful* in that country where they have occurred, in order that they may be referred to at a future time, for the solution of any question, or the comparison of any subject, in that particular branch: and to the follower or admirer of the branch of science to which they relate, they must likewise prove *interesting*.

With this view, I have in the present paper collected some facts relating to the Ornithology of a very small portion of Britain; and since about half of this district forms a corner of the large and noble county wherein the British Association holds its meeting for the present year, I beg to communicate to that scientific body the following brief memoir on the birds of north-western Cleveland and of south-eastern Durham. And in addition to the *facts* recorded in it, I have at the same time inserted some scattered notes and observations.

The *district* to which I have limited myself is as follows. In the county of Durham, from Castle Eden Dene to Darlington, thence to Croft-bridge on the Tees; in the county of York, from Croft to Appleton-upon-Wisk, which village constitutes the western boundary of Cleveland, then from Appleton-in-Cleveland to Stokesley; thence in a straight line to Staithes, and from the sea off Staithes to the eastern extremity or mouth of Castle Eden Dene. And from a rough computation, I find that this tract altogether contains nearly 320 square miles. Now, the total number of species of birds which I have been able to record as having been observed in that district, during a good many years, amounts to no less than two hundred and ten. By referring to Mr. Selby's 'Catalogue of the Birds hitherto (1831) met

* The author has used the scientific names employed by Mr. Yarrell. In recommending all my contributors to follow this plan, I do not seek to express any opinion as to the merits of individual names, but merely to establish a degree of uniformity in our nomenclature of British birds.—*Ed.*

with in the Counties of Northumberland and Durham,' published in the 'Transactions of the Nat. Hist. Soc. of Northumberland, Durham and Newcastle-upon-Tyne,' vol. i. 1831, it will be seen that that eminent ornithologist only gives two hundred and seventeen species* for the large space of country comprised in those two entire counties; consequently in my very limited district there have been found only *seven* species *fewer* than in Northumberland and Durham together. I find also from Mr. Yarrell's excellent 'History of British Birds,' which is lately completed, that the total number of species in Great Britain amounts to three hundred and twenty-six; so that Mr. Selby's number is exactly *two-thirds* of the whole British species, and mine falls short of two-thirds by only *seven* species. As accuracy is the most essential quality, and chief value of a catalogue of the sort here formed, I have been most careful in excluding from it every bird, which vague rumour, or report alone, has stated to have been seen in this vicinity.

If, however, we consider the *nature* of the district, which has been defined by the limits before mentioned, we shall not be surprized at learning that so many species have been observed within it.

In the first place, for the haunts of *land-birds*, there is nearly every kind of ground,—highland and lowland, bare moorland and cultivated fields, hills — rather mountains — exceeding 1000 feet in height from the sea-level, valleys, woods and wooded dales, small plantations, or copses, land covered with heather, whins and brushwood, open large fields on a clayey wet soil, and on a dry rich loam. And in the second place, for the breeding and resort of wild fowl and other *water-birds*, there are boggy spots on the moors, numerous small rivulets and streams, an extensive tract of river, in the lower part of which the tide flows for a considerable distance, and where, at low water, its sandy or muddy banks are spacious, — considerable salt-marshes, an estuary of a great many miles in circumference; a noble expanse of sea or ocean; the coast itself, either abounding with cliffs, rocks, rocky caverns, crevices and holes; or a pure sandy beach, or sand-hills with numerous rabbit-burrows, or shingle; or bold and lofty head-lands, presenting to the sea grand and rugged surfaces of perpendicular rock. Hence, with such varieties of soil and water, we may always expect to discover some strange bird passing either from the southern and more

* It is remarkable that the number of species contained in 'A Catalogue of the Norfolk and Suffolk Birds,' by the Rev. Messrs. Shepperd and Whitear, published in vol. xv. of the Linnean Transactions, 1826, should *exactly correspond* with Mr. Selby's number.

favoured climates, or escaping from the intense frost and deep snow of the arctic or northern regions of Europe, or even of America. In winter — especially if Iceland, — perhaps Greenland too — Norway, Sweden and Denmark, be visited with severity,

————— “ Multi glomerantur aves, ubi frigidus annus
Trans pontum fugat, et terris immittit apricis,”

multitudes of birds, particularly swans, geese, ducks, and other Natores, migrate to our milder sea-shore, to the estuary of the Tees, and to the adjoining salt-marshes; and in such a season, many scarce species are always met with. Indeed, I consider that in a certain number of years most, if not all, the sea-birds which are known to frequent Britain—with the exception of a few exceedingly rare southern stragglers — might be shot within the district to which my present catalogue is limited.

Having, twenty years ago, written a ‘Catalogue of most of the Birds which are known to frequent the country near Stockton,’ — that was afterwards published in the Appendix to Brewster’s ‘History of Stockton-upon-Tees,’ I was obliged to confine my examination to a very small portion of the present district.

The only other notices that have already been published on the birds of parts of this country, besides those two which I have previously mentioned, are as follow. ‘A Catalogue of Cleveland Animals, Class II. Birds,’ in the Appendix to the ‘History of Cleveland,’ by the Rev. John Graves, 1808; and ‘A List of Birds observed at Hartlepool,’ in the Appendix to the ‘History of Hartlepool,’ by Sir Cuthbert Sharp, Kt., 1816. Both of these, however, are mere lists, and unaccompanied with any descriptive notes. In the following pages I have frequently referred to them.

—————
Golden Eagle, *Aquila chrysaetos*. “One, I believe, was killed near Marsk, six or seven years ago, and is in the collection of Mr. C. Oxley, Redcar; but I have not seen it.”—*J. G.**

White-tailed Eagle, *Haliaeetus albicilla*. I am glad of this opportunity to state that the eagle shot near the Tees, in Cleveland, by Mr. L. Rudd, Nov. 5, 1823, and incorrectly recorded in my Catalogue of Birds appended to Brewster’s ‘History of Stockton,’ No. 4, as the golden eagle, proved, upon a personal examination, to be *H. albicilla*.

* This is from the information kindly afforded to me by Mr. John Grey, of Stockton; to whom I am also indebted for the knowledge of many rare birds that have been noticed in this district: and to whom the initials *J. G.* refer.

At the time that catalogue was written, I gave the account of the eagle as detailed to me by a gentleman, whom I considered as an accurate ornithologist, and it was from his description that the error occurred. I saw the same specimen a few years afterwards, and on carefully inspecting it I had no doubt of its being this species, and not the golden eagle. Its ash-coloured or cinereous plumage, its tail, and more especially its feet, clearly settled the distinctive characters of the species. For a neat vignette, representing the foot of each of these eagles, see Yarrell's 'British Birds,' i. 19; the distinction of these is but indifferently made in Bewick's figures.

Osprey, *Pandion Haliaetos*. Mr. Selby, in his 'Catalogue of the Birds of Northumberland and Durham,' p. 245, No. 3, says,—“I am informed that Mr. E. Backhouse, when at Hartlepool, frequently saw one perched on the wreck of a ship.”

Gyr-falcon, Iceland Falcon, *Falco Islandicus*. I saw a fine specimen of this rare falcon, which had been shot, about the middle of March, 1837, on the moors near Guisborough. It was a young bird, having all the upper parts of a brown ash-colour, the white occurring on the edges of the feathers. The under parts white, with large longitudinal brown spots. Legs strong, blue, tinged with yellow. Bill blue, tipped with black. Wings nearly as long as the tail. Length about 22 inches. It well corresponded with plate 462 of the 'Planches Enluminées,' which is named "*Gerfault de Norwege*," except that that plate represents the back of rather too dark a brown, and the orange-coloured iris is wrong, for the iris in the above specimen was brown.

Peregrine Falcon, *Falco peregrinus*. A pair of these falcons breeds nearly every spring in Huntcliff.—*J. G.*

Hobby, *Falco subbuteo*. A rare and migratory species in the district.

Merlin, *Falco Æsalon*. In some places of the north of England a common bird, where it builds; but in the south-east part of Durham, it is rather scarce.

Kestrel, *Falco tinnunculus*. A common species, and more particularly in the autumn, with us. I have often observed several on the wing together at that season, when they always seemed to me to be somewhat gregarious. It is locally called the *windhover*, from its manner of resting in the air, and gently moving both wings; it thus *hovers* over its prey (a field-mouse),* and then all at once falls or pounces upon it. The kestrel more nearly approaches to the eagles in the extreme acuteness of its vision.

* The kestrel also feeds greedily on insects, caterpillars, lizards and slow worms. See Zool. 521, 867.—*Ed.*

Sparrow-hawk, *Accipiter Nisus*.

Kite, *Milvus vulgaris*. A rare bird in this country.

Common Buzzard, *Buteo vulgaris*. Mr. Graves has included this species in the list of birds published in his 'History of Cleveland.' It is only occasionally seen in this vicinity.

Rough-legged Buzzard, *Buteo lagopus*. A very rare visitor in the north of England. The specimen in the Newcastle Museum mentioned by Mr. Selby in his Catalogue, p. 248, No. 15, is, I believe, the same which I have recorded in my Catalogue of the Birds near Stockton, No. 7. "Several have been shot in the neighbourhood of Huntcliff: a fine specimen is in the possession of Thomas Hutchinson, Esq., Brotton."—*J. G.*

Honey-buzzard, *Pernis apivorus*. I could wish to exclude the vulgar name of *honey-buzzard*, for it only tends to perpetuate an error, since it is well known that the bird never eats honey. Ray called it "*Buteo apivorus seu vespivorus*," as if it fed solely on *bees* and *wasps*. Being an insectivorous as well as a carnivorous species, I have long named it *larvivorus*, because it is most fond of the *larvæ* of bees and wasps.* Therefore the *gentle* buzzard is, I consider, a very apt English name for it; *gentle* being, as all disciples of honest Isaac Walton need not be told—a *maggot*. The two preceding species of *Buteo* are entirely *carnivorous*. Mr. J. Grey has a stuffed specimen which was shot near Elwick.

Marsh Harrier, *Circus æruginosus*. Usually named the moor-buzzard. I have in different years seen this bird in the autumn frequenting the bare limestone cliffs of the Durham coast. It sits perched on a rock and watches the sea-birds, till an opportunity occurs of seizing one for its prey. It is here vulgarly called the "*duck-hawk*," and comes from the moors to the sea-coast in search of water-fowl. I have noticed that the younger birds are without the yellowish-white mark on the top of the head, (see Bewick's figure, vol. i. p. 19, edit. 1797); and have only a greyish or light-coloured spot on the throat. It is a remarkably active and elegant species. Pennant states that "it also preys, like the osprey, upon *fish*:" this, then, affords another reason why it migrates to the coast. The gamekeepers on some of our moors hunt this bird with pointers in the spring, for the purpose of finding its nest; having marked the spot, they afterwards shoot the old birds, and destroy their eggs or brood.

Hen Harrier, *Circus cyaneus*. The name *harrier* was applied to this species, either from its usually flying low, and carefully skimming

* It also eats bees in the perfect state. See Zool. 793.—*Ed.*

over the fields, like a hound in search of game, or it is a corruption of *harrower*, from the verb *harrow*, to pillage, strip, or tear up; or from the Scotch word *harry*, which is derived from the old French *harer*, to rob. It is worthy of remark, that the head of the female (the *ringtail*) resembles, more perhaps than any of our other buzzards, that of an owl, having much the same disk of circularly disposed feathers on each side of the head.

Montagu's Harrier, *Circus Montagui*. "A pair of these birds was shot near Guisborough. They are now in the collection of Mr. C. Newby, at Stockton."—*J. G.*

Scops Eared Owl, *Scops Aldrovandi*. This very rare and migratory species was recorded by me, from the information of Mr. Winch, as having been known to breed in Castle Eden Dene, (see Appendix Hist. Stock. p. 14). Scops, or Σκῶψ, is evidently derived from σκιά, and ᾤψ, *i. e.* the power of seeing in the shade or dark.

The old writers named the appendages on the head, *horns* in the Bubo and Scops, and *ears* in the two species of Otus.

Long-eared Owl, *Otus vulgaris*. By no means common just here: but it frequents the more wooded places, and lives chiefly in old trees. Mr. J. Grey has a well-stuffed individual, which was shot in the Wynyard woods.

Short-eared Owl, Woodcock Owl, *Otus brachyotos*. It has received its latter trivial name with us in the north of England, because it appears there about the 20th of October, the period of the arrival of the woodcock; and is supposed to migrate, like it, from Norway, and other parts of Scandinavia. It inhabits thick grass, whins and hedges in fields, and remains the whole winter, preying chiefly on field-mice and rats. It is a handsome bird, and rather tame.

Barn Owl, *Strix flammea*. The fascial disk in the present bird is large and strongly marked. This, together with the height of brow projecting above the eyes, gives to most of the owls a very solemn, sagacious and intelligent aspect, and has therefore caused them to be considered as the birds of wisdom, and to have been held, from a very early period by the Athenians, as sacred to Minerva, and the emblem of their own city, and which they placed upon their coins, sculptures and paintings. The barn-owl is a widely distributed species, being found in America and throughout Africa: it appears frequently in the painted hieroglyphics and sculptures of Egypt.

Tawny Owl, *Syrnium stridulum*. The preceding and this species do great service to the farmer in clearing his fields of the Muridæ and Castoridæ.

I may here briefly allude to a beautiful provision of Nature in the ears of owls; namely, those kinds in which the ear-conch, or auditory aperture, is large, have a little cover, or *operculum*, that is closed or opened at pleasure; whereas those species, whose auditory aperture is smaller, are not furnished with that addition. Hence the use of this operculum, which is analogous to the tragus in the ears of bats, is, I apprehend, like that of the latter, two-fold; first, to keep the auditory passage free from dust and extraneous substances: and secondly, to regulate their very acute sense of hearing.*

Great Grey Shrike, *Lanius excubitor*. With us a rare visitor. Sometimes it appears in the latter part of the year. The latest specimen which I have seen, was a stuffed bird that was killed near Cowpen, in October, 1841.

Red-backed Shrike, *Lanius Collurio*. Mr. Selby has recorded the fact of a pair having bred in the north district of the county of Durham, (Cat. 252, No. 32); and Mr. Yarrell observes that it is occasionally found "as far north as Northumberland and the south-eastern part of Durham," (Br. Birds, i. 157). I have never seen this species in the S.E. corner of the latter county; but Mr. J. Grey has one preserved in his collection, which was shot near Guisborough.

Spotted Flycatcher, *Muscicapa grisola*. This domestic but migratory bird is common in every garden. It builds its nest, which is but coarsely made, in fruit-trees trained to walls, and often rebuilds in the same spot for several successive years. It is an amusing sight to watch it whilst pursuing and seizing a butterfly in the air. When it has secured it, the noise of the sharp closing of its mandibles is distinctly heard, and the wings of the insect are seen falling to the ground.

Pied Flycatcher, *Muscicapa atricapilla*. Mr. Selby states that "in Durham this species is of rare occurrence," (Cat. 251, No. 30). I certainly do not remember to have seen it alive hereabouts. One was "shot near Stockton, and is in my collection." — *J. G.* It is also included in Mr. Graves's 'Catalogue of Cleveland Birds.'

Water Ouzel, or Dipper, *Cinclus aquaticus*. "Very common in all the small rocky brooks which run from the moors, both in Yorkshire and Durham." — *J. G.*

It dives well, and is a very restless bird. In the autumn of 1835, I saw many of them among the stones in the river Derwent, nearly under the High Tor in Matlock Dale, Derbyshire, and had a good opportunity of witnessing their flight and other movements.

* For an account of the curious structure of the owl's ears, see Zool. 1020 — *Ed.*

Missel Thrush, *Turdus viscivorus*. In this district a very common bird in gardens; and as it begins to sing the earliest of our songsters, it has obtained the local names of *storm-cock* and *Jeremy joy*; the latter being a corruption of *January joy*. It sings on a day which, for the season, may be called fine, but which is generally a forerunner of stormy and severe weather. It continues with us all the year.

Fieldfare, *Turdus pilaris*. Arrives here from the north about the middle of October; I have observed a few even as early as September 27, and have seen them remaining as late as the second week in April. Its mode of flight is peculiar, and is usually accompanied with a harsh chattering, which the birds most probably so frequently utter in order to keep the flock together. It is very good eating, and makes a delicious pudding. On the wing it is easily distinguished from the other Merulidæ, by the *white* patch under its wings. I have noticed that it varies a good deal in size, and in the depth and shading of its colours.

Song Thrush or Mavis, *Turdus musicus*. Much smaller than the missel, and more uniform in its colours and spots. The habits of both species are nearly alike. It is amusing to watch a thrush upon a grass-plot, looking out for worms: as soon as it obtains a glimpse of one, it turns its head sideways, and putting its eye nearer the hole, immediately seizes a part of the worm, and pulls it out; devouring it gradually as the worm is torn from its abode. Thrushes are thus very useful in destroying those pests, that raise such unsightly balls of earth upon garden-lawns.

Redwing, *Turdus Iliacus*. Resembles greatly the former, but it is of a more elegant shape. In migration from northern Europe, it is the precursor of the fieldfare, and often associates with it, in severe weather, in vast flocks. It is readily known from that bird, not only whilst flying, by the *red* colour under its wings, but also by its *piping* note. From the latter it has been locally termed *swinepipe*. Its flesh is good, although it has sometimes a bitter taste, by reason of its living much on insects, worms and snails.

Mr. J. W. Ord has informed me that a redwing's nest, with four eggs, was found at Kildale in 1840. John Bell, Esq., M.P., has two of those eggs; and the other two are at Kildale Hall, in the possession of E. H. Turton, Esq.

Blackbird, *Turdus Merula*. A destructive species in gardens to the cherries, currants, &c.; but as it well repays us with its song, its fruit-devouring propensities ought to be passed over. Mr. Selby has mentioned the migration of blackbirds and thrushes from the north of

Europe to our east coasts, usually between the 10th and 20th of November, (see Cat. 253, No. 37). This bird sometimes occurs with a few white feathers among its black plumage, which are then, from the great contrast, most conspicuous. But one would almost consider a perfectly *white* blackbird as great a rarity as a *black* swan used to be in "days of yore." Different species of the Merulidæ, under the common name of *Tordi*, form a standing dish in the Italian dinners, and are often served up with millet: "nil melius *Turdo*," is still a true saying in modern Italy.

Ring Ouzel, *Turdus torquatus*. I have only seen one individual alive in this vicinity, which was October 9, 1831, on a hedge in the barer country to the north-east of Newton Bewley. Having the white crescent very distinct on the breast, I concluded that it was an adult male. It was a little larger than the blackbird, and uttered a louder and a hoarser note; and, when standing on a branch of the hedge, it kept moving its tail more frequently. I am informed that one was shot near Thorp, in 1828. Graves has included this species in his 'Catalogue of Cleveland Animals.'

Bohemian Wax-wing, or Waxen Chatterer, *Bombycilla garrula*. This most elegant bird, called also the *silk-tail*, is an occasional visitor. I have an excellent preserved specimen of an old male, which was shot at Norton above fifty years ago. It has seven red sealing-wax-like processes terminating the quill-feathers on the wings; and all the colours still remain very bright. One is recorded in Sharp's 'History of Hartlepool' (App. 17) to have been found dead on the sand-hills near that town, in 1814. Mr. Selby supposes the species to be indigenous in Central Asia.

Hedge Sparrow, *Accentor modularis*. A domestic species, of a plain plumage, but of a sweet and pleasing song. It occupies a somewhat important station among birds, as being the principal nurse and attendant on the cuckoo.

Redbreast, Robin, *Erithacus rubecula*. The original name of this genus is *Erithacus*, and is so used by Pliny (Nat. Hist. lib. 10, cap. 44), whilst Mr. Swainson has written it *Erithaca*. I have restored the former word.

The robin is a bold and domestic fellow; he attends without fear, in the spring, upon a person when digging, for the sake of insects which are turned up by the spade.

Redstart, *Phœnicura ruticilla*. A pair or two frequent our gardens in the spring, arriving about the 18th of April. The adult male is a very elegant and beautifully marked bird. Its nest is generally diffi-

cult to be found. This spring, a pair built in an inverted garden pot, which was placed over a tender annual in my garden, and the female laid four greenish-blue eggs. The birds came in and went out by the hole in the end of the pot. But a cat, having observed them, overturned the pot in her attempt to catch one, and so put to flight the unlucky pair, before the period of their incubation had been completed.

Stonechat or Moor Tit, *Saxicola rubicola*. In this district it is a local species, and somewhat rare; keeping out of the cultivated spots, and inhabiting alone the bare moors and commons. Its cry is peculiar.

Whinchat or Grasschat, *Saxicola rubetra*. Here a bird of passage, and very common in the summer. The male is handsome. The English name, as usually written, is *whinchat*, but this, I conceive, is very probably an error for *windchat*: because the bird perches generally on the top of a thorn hedge or high plant, as if to catch the *wind*, and then utters a monotonous and chattering note. *Whin*, in the north, is synonymous with *furze* or *gorse* of the south, of England.

Burrow-chat, Wheatear or White-rump, *Saxicola Œnanthe*. Abundant on the sand links along our coast, where it arrives early in the spring, and breeds in the deserted rabbit-holes. It also frequents the river-embankment near the Tees. It is delicious eating, although in this neighbourhood it is neglected as a luxury for the table.

Sedge Warbler, *Salicaria Phragmitis*. The *sedge-bird* is common in our low and marshy grounds during summer. It is indefatigable in singing, both by day and oftentimes by night, and is likewise famed for its powers of imitating other song-birds.

Black-cap, *Curruca atricapilla*. This sombre-coloured species is the best and most melodious of our northern songsters, as the nightingale is unknown here. Arriving about the time of the redstart, it is not unfrequent in the spring in our gardens and plantations, wherein it nidificates.

It is, I believe, an established fact, that most of the songsters require considerable warmth and dryness of climate. Some birds, when kept in cages, will not sing unless they are placed in a very warm situation. The chief singing birds in the more northern countries, such as Norway and South Lapland, are the fieldfare, redwing, and some other Merulidæ; but are there any of the true songsters, or Aëdonidæ, within the Arctic circle? The nightingale does not come further than the immediate vicinity of the city of York (see Yarrell's Birds, i. 278), in the northern division of England, by reason of the comparative coldness of the climate: nor does it generally visit Cornwall, nor cer-

tain parts of Devonshire, nor Wales, on account very probably of the great humidity, and quantity of rain, which annually occur in those districts.

Garden Warbler, Great Pettychaps, *Curruca hortensis*. Frequents gardens in the summer. Both this bird and the blackcap are said to be very destructive to fruit. The Hon. and Rev. W. Herbert states that Bewick is wrong in making the passerine warbler an English species; that which he has figured being only *Sylvia hortensis* (*Temm.*) and not the *true* passerine warbler. Mr. Yarrell has confirmed this, and in his synonyms at p. 285 (vol. i.) has correctly referred both of Bewick's birds to the present species. Its admirable song is well characterized by the latter author, as "wild, rapid, and irregular in time and tone; but the rich depth is wonderful for so small a throat, approaching in deep mellowness even to that of the blackbird."

Common Whitethroat, *Curruca cinerea*.

Willow Warbler, *Sylvia trochilus*. A delicate and elegant bird, not uncommon, and coming here before the former species. The willow wrens, or *Sylvia*, are so much alike in their general appearance, that it requires a skilful observer to distinguish their specific differences.

Obs. — I have heard occasionally, in the early spring, a small bird uttering a monosyllabic note, which is like the sound of *ching, ching, ching*, and which I take to be a species of *Sylvia* not described in Yarrell's 'British Birds,' (i. 310). It is evidently the same bird as Mr. Herbert has designated the *ching ching*, and which may, I think, be named the smaller willow-wren, perhaps the *S. rufa* of Latham. Mr. Herbert says that it migrates hither, and is not unfrequent in some places in Yorkshire; but he considers Messrs. Selby and Jenyns have wrongly applied the specific name *Hippolaïs* (*Lath.*), as a synonym to the chiff-chaff. The last author also has added *rufa* (*Temm.*) as another synonym, which is likewise incorrect. Moreover, the *S. loquax* (*Herb.*) or chiff-chaff, whose song is dissyllabic, and sounds like a loud repetition of those two words, I have never heard in this northern district.

Common Golden-crested Regulus, *Regulus cristatus*. Some remain with us all the year. Mr. Selby (Cat. 257) relates that vast numbers migrate from the north of Europe. It seems really wonderful that so diminutive a bird should be capable of such a long flight. For this reason, the common people of Hartlepool name it "tot o'er seas." It lives chiefly on the insects that are to be found on the fir and larch; and constructs a large and somewhat coarsely built nest, which is pendant from the under side of a branch of a fir. The golden crests have

many of the habits and manners of the titmice; they fly similarly, chirp, are very restless, hang to a branch with their backs downwards, &c. As birds doomed by Nature to inhabit a cold northern district in the European division of the world, they are remarkably impatient of cold. The Hon. Mr. Herbert confirms this my former remark, (see my Catalogue, 5, No. 30). "In confinement," says he, "the least frost is immediately fatal to them. In a wild state, they keep themselves warm by constant active motion in the day, and at night they secrete themselves in places, where the frost cannot reach them,—but I apprehend that numbers do perish in severe winters."

I have not yet discovered in this vicinity the Flame-coloured Golden Crest, *Regulus ignicapillus* of Jenyns.

Great Tit, Ox-eye, *Parus major*.

Blue Tit, Blue-cap, *Parus cæruleus*. A pert and bold little beauty. It is entertaining to watch the motions of this bird, and to witness the ease with which he hangs to the under side of a bough, with his back downwards. One of the most active and busy of the feathered tribe. Gardeners ignorantly persecute him for his supposed destruction to the flower-buds of fruit-trees: in this respect, however, he often does more good than actual harm, for his prey is insects, and not flowers. I have several times witnessed his use in destroying the American blight (*Aphis lanigera*), now so common on our best varieties of apple-trees, which he devours with great delight. The Tomtit builds his nest in extraordinary places, quite regardless of danger; I well recollect to have found one within the wooden case of a pump, which the parent birds entered and came out of by the part left for the handle to work in.

Cole Tit, *Parus ater*. This species is included in Mr. Graves's 'Catalogue of Cleveland Birds.' Authors write the word "cole," but this appears to me to be a mistake for *coal*—the bird being so named from the quantity of black (*ater*) in its plumage, especially in that of the male. This I think is corroborated from Buffon's having called it "la petite charbonnière,"—the little *coal-woman*.

Marsh Tit, *Parus palustris*.

Long-tailed Tit, *Parus caudatus*. Dr. Leach separated this bird from the Parus, and gave it the generic name of *Mecistura*, signifying, *longest tail*. The bill of this genus appears almost uselessly *short*—in fact, like a deformity. It is rather a scarce bird hereabouts. In its rapid flight it somewhat resembles an arrow. It possesses great parental attachment, as the young, ten or twelve in number, keep with their parents, until the season of nidification returns. It utters a

shrill cry, as a call-note by which the diminutive flock is kept together. Begins to pair early in March.

Pied Wagtail, *Motacilla Yarrellii*. A very common and domestic bird. It may often be noticed in moist pastures, running close to the legs of horses and cows, in order to catch the flies and other insects.

Grey Wagtail, *Motacilla Boarula*.

Ray's Wagtail, *Budytes flava*. A bird of passage with us, delighting more in dry and upland places than the *Motacillæ*.

This Cuvierian genus, *Budytes*, which is also adopted by the Prince of Musignano, constitutes, from the elongation of the hind claw, a good and connecting one with the genus *Anthus* of Bechstein.

Tree Pipit, *Anthus arboreus*. This is the *field-lark*, *tree-lark*, or *Alauda minor*, of some British authors. Much like, and often mistaken for, the following species, but it is less common. It migrates and breeds here.

Meadow Pipit, Titlark, *Anthus pratensis*. Frequent in barren pastures and moory places. A pleasing songster. It varies much in its winter and summer dress, and is a stationary bird with us.

Rock Pipit, Sea-beach Pipit, *Anthus petrosus*. This is the *Alauda obscura* of Latham, and the dusky lark of Pennant. I propose to give it the more appropriate trivial name of sea-beach pipit, because it is confined to the cliffs, rocks and low lands close to the sea. It is very frequent upon the magnesian limestone rocks of the Durham coast. Identical with the *A. campestris* of my former Catalogue, 6, No. 36.

Skylark, *Alauda arvensis*. Begins its delightful and cheerful song nearly as soon as the sun commences to dispel the wintry days—usually in the month of February. Larks make an excellent roast; and every Londoner knows the goodness of the *Dunstable* larks. So in Germany, every epicure esteems *Leipsic* larks: indeed, in Saxony, a *Lerchenpesser*, or *lark-eater*, is a common phrase for a luxurious fellow—a *bon vivant*. The flat and unenclosed corn-fields around *Leipsic*, are a famous habitat for this bird. In the south of France, in Italy, Sicily, &c., not only are larks in common use for the table, but also most sorts of little birds; in fact, nearly all the *Dentirostres* and the smaller *Conirostres* are eaten indiscriminately. The fame of the true ortolan and *Beccafico* requires no comment.

Woodlark, *Alauda arborea*. I have never seen this species in our district; but it is inserted in Graves's 'Catalogue of the Birds of Cleveland:' and Mr. J. Grey tells me that he has one stuffed in his collection. Mr. Selby likewise has included it in his 'Catalogue (No. 76) of the Birds of Northumberland and Durham.'

Snow-bunting, Tawny Bunting, *Plectrophanes nivalis*. This bird appears on our coast in flocks about the end of October, sometimes even earlier. It possesses much of the character of the lark, and resembles it in its mode of flight and running. I have shot them in different stages of whiteness; but, in this neighbourhood, I never saw one *completely white*, which, I am inclined to think, only takes place in the extreme cold of the more northern regions. The local name of *snow-flake* has been given to it from the patches of white in its plumage during winter. It frequents the cliffs along this coast, and the sea-banks by the Tees. Some say it is delicious eating.

Common Bunting, *Emberiza miliaria*. The peculiarity of the bill, especially of the lower mandible, gives it somewhat the appearance of being deformed.

Black-headed bunting, *Emberiza Schœniclus*.

Yellow Bunting, *Emberiza citrinella*.

Chaffinch, *Fringilla cœlebs*. This is but a poor songster. It breeds early, and makes a beautiful nest. The male is handsome, and too affectionate to his mate to deserve the title of *cœlebs*.

Mountain Finch, *Fringilla montifringilla*. The *brambling*, which is the more usual name of this species, a good deal resembles, in its *general* form and appearance, the *Plectrophanes nivalis*, particularly in certain states of its plumage. It is rare in this neighbourhood, but is sometimes met with in the winter, and in the early part of spring.

Tree Sparrow, *Passer montanus*. A smaller bird, and of a better shape than the house-sparrow. In some years, especially in 1829 and 1836, it has been known to breed in the old trees and poplars in this village, (Norton). Mr. Selby mentions (Cat. 262, No. 82) that he has "not been able to trace it further north" than near Newcastle-on-Tyne. Yet it is said to be abundant in North America.

House Sparrow, *Passer domesticus*.

Common Linnet, *Linota Cannabina*. Very abundant, and varies much in plumage, both in respect of the seasons, and also of age and sex. The *F. Linota*, Grey Linnet, of my Catalogue (Hist. Stock. 8, No. 54), is identical with this bird.

Lesser Redpoll, *Linota linaria*. This sweet little linnet is here common, and remains throughout the year; and, like the preceding, varies greatly in its dress and colour. It is the *Linaria flavirostris* of Selby's Cat. No. 85. I think it very probable that the *L. canescens* of Gould (see Eyton's 'Rarer British Birds,' fig. p. 19) and the Mealy Redpoll of Yarrell (i. 508), is the *L. borealis* of Selby (Cat. 263, No. 86), which is a larger and a stouter-made bird than the present species.

Mountain Linnet or Twite, *Linota montium*. Frequents, occasionally with the other species of linnet in the winter, and flight-season, the more upland districts of Cleveland. Its usual note is monosyllabic, and like *tweet, tweet, tweet*. In this vicinity, however, it is a rare bird.

Goldfinch, Goldspink, *Carduelis elegans*. This very beautiful and elegantly shaped bird, and good songster, is by no means abundant here. It may be sometimes seen frequenting the more barren spots, and picking seeds from thistles and other syngenesious plants.

Siskin, *Carduelis spinus*. A migratory and winter species. I have noticed a few in different years, resting on alder-trees (*Alnus glutinosa*), in company with the lesser redpoll, in the low grounds near Norton. I killed one there, which I preserved. I am unacquainted with its song.

Common Crossbill, *Loxia curvirostra*. In the winter of 1835-6, another flock of crossbills was seen near Stockton, out of which several good specimens, of both sexes, were shot. The very singular formation of the bill, aided by its powerful muscles, is admirably adapted to the opening and breaking of the woody cones of the different species of Pinus, on the seeds inclosed in which the bird chiefly subsists.

Bullfinch, *Pyrrhula vulgaris*.

Hawfinch, Grosbeak, *Coccothraustes vulgaris*. Here a rare visitor. A flock was observed at Ormesby, in Cleveland, near Stockton, a few years ago, from which two individuals were shot. Another is recorded by Mr. Selby (Cat. 266, No. 100) to have been killed at Streatham, in the west of the county of Durham. Mr. Yarrell has therefore committed an oversight at p. 487, vol. i., where he states that this bird is *not* included in that Catalogue. But as the Catalogue has added no Latin *specific* name, I have preferred to give the appellation *grandirostris* — huge bill — *grosbec* — to this species, because of its large and powerful beak, an instrument, indeed, sufficiently strong to crack the hardest nuts, and stones of fruit. Its geographical range in Europe, extends from the north of Sweden to the south of Italy.

Greenfinch, Green Grosbeak, *Coccothraustes chloris*. JOHN HOGG.
(To be continued).

Note on the arrival of Birds at Pilling, Lancashire, in 1845.

The Swallow	April 9	Sedge-warbler	April 30
Ray's Wagtail.....	10	Pied Flycatcher.....	May 1
Wheatear	11	Common Whitethroat	5
Willow-warbler	16	Common Sandpiper	5
Cuckoo	21	Common Quail.....	June 1
Whinchat.....	26		

Above you have a list of certain migratory birds, with the dates of their first appearance, as observed by myself here. The swallow, April 9, is earlier than I ever before noticed it so far north, namely, in lat. 54°. Nor was it an accidental straggler: there were not less than eight or ten birds in the same company, flying over a large pond of water, and resting occasionally on some naked boughs as composedly as if the summer were far advanced. One had been seen at the same pond on the 4th of April. The weather for about ten days preceding the 9th of April had been genial and warm. The cuckoo's note on his arrival was clear and distinct; but it is an observation of my own, confirmed by a very intelligent gamekeeper residing near me, that we have had very few cuckoos this year. The same remark applies also to the house-martin, which I never saw this year before the beginning of May, though I feel satisfied it must have been here before. It is the first time I have ever met with the pied flycatcher in this part. The wind was blowing strongly from nearly west, and this bird had taken up a position on the eastern side of an orchard, and under this shelter was busily engaged in taking flies, and retreating generally to the broken and dead stock of a thorn, overhanging a small pond or ditch of water. This bird was very tame, and allowed me to approach within a few yards of it. On dissection I found it to be a male. If you would allow a digression (and from a notice on the cover of the last *Zoologist*, you appear desirous of remarks on migration), I may perhaps be permitted to add that whilst the swallows were numerous amongst us, the woodcocks and fieldfares had not yet taken their final leave for the summer. A neighbouring gentleman informed me that towards the middle of last April he saw two woodcocks on the same day, killed one, and seriously wounded the other. On the 24th of April I saw not less than one hundred fieldfares in a flock, amongst which were a few redwings. I have frequently seen a few scattered fieldfares much later in the season, but I was astonished at the great number congregated, and more especially as the morning was warm and genial, though about the middle of April the winds had been keen and severe, and even snow had fallen on and covered the tops of some of the high Cumberland hills. It may perhaps be difficult to account for the presence of the numerous swallows, and the prevalence of woodcocks and the abundance of fieldfares on nearly the same grounds, and at the same time of the year; and were atmospheric changes the *only* influencing motives to migration, we might conclude that either the swallows or fieldfares were deceived, or perhaps that a premature summer in a more southerly climate than our own had urged the swallows too hastily to abandon their winter quarters, and visit their accustomed breeding-stations. If, however, we admit that incubation is also a motive to migration, we then may imagine another reason why some birds stay longer in their winter quarters than others. And this supposition would appear to be countenanced by the varying periods of nidification of different species of birds. For according to Mr. Yarrell, the "swallow begins to form her nest in May, and her first brood flies by the end of June," (*Br. Birds*, ii. 217). Whereas, according to the same high authority, the fieldfare breeds generally late in July, and "the young are just able to fly about the 6th of August," (*Id.* i. 191). Here then is a reason why the swallow should be at her breeding-station sooner than the fieldfare; and therefore, in addition to the atmospheric changes acting externally on the bodies of birds, and urging them to select a climate congenial to their nature and suitable to their wants, there is also in the spring season an internal impulse prompting to the procreation of their species, and probably regulating materially the precise period of their migratory movements. — *J. D. Banister; Pilling, Lancashire, June 11, 1845.*

*Dates of the Arrival of a few Summer Birds of Passage at Wandsbeck, near Ham-
burgh, in 1845.*

White wagtail.....	March 27	Redstart	April 19
White stork.....	April 1	Cuckoo	May 10
Swallow	18	Red-backed shrike	12
Nightingale.....	18	Woodchat	12
Wryneck	18	Oriole	12
Pied flycatcher	18	Hoopoe	12
Swift	18		

Auguste Lamek ; Wandsbeck, near Hamburgh.

Dates of the Arrival of some of our Summer Birds near Allesley, Warwickshire.

Redstart appeared and sang very feebly	April 4	Tree-pipit sang.....	April 22
Chiff-chaff (<i>Sylvia loquax</i>) sang	7	Cuckoo sang [heard by others April 20]	24
Willow-wren (<i>S. Trochilus</i>) sang	17	Grasshopper Warbler sang	24
Swallows (<i>H. rustica</i>) appeared	19	Fieldfares last seen	24
[Three swallows were seen at Warwick by other observers, April 7].		Young rooks heard in their nests	24
		Wood-wren sang	25
		Nightingale sang	26
Blackcap sang	21	Swifts appeared [at Warwick]...	May 5

Up to the present time, May 16, no swifts have been observed here ; they seem to be deserting this district. As regards the above notices, I may remark that the appearance of the redstart on the 4th of April is unusually early for this neighbourhood ; I seldom see it till about the 12th or 14th. The song of the chiff-chaff on the 7th, and that of the blackcap on the 21st, are unusually late ; the former is generally heard in March, the latter early in April, and occasionally the latter end of March. The rooks for the most part are a very punctual people in commencing the business of nidification ; I consider the 10th of March about the usual time when they begin to carry sticks for building in the rookery here ; and they seldom vary more than one or two days on either side of that date. This season I observed them carrying sticks on the 12th, in spite even of the severe weather ; but it should almost seem as if this were only for form's sake, and, as it were, to keep up their character for punctuality ; for they desisted, in consequence, I presume, of the coldness of the weather (it being severe frost), or at least made little or no progress for about a week or more.—*W. T. Bree ; Allesley Rectory, near Coventry, May, 1845.*

Dates of Arrival of Migratory Birds at Elvedon, in 1845.

Black and white wagtail	Feb. 21	Redstart	April 17
Ringed plover	Mar. 3	Blackcap	18
Lapwing	10	Nightingale	21
Wheatear	26	Swallow.....	22
Great plover	27	Cuckoo	22
House-martin	April 4	Spotted flycatcher	24
Willow-warbler.....	5	Sand-martin	27
Wood-warbler	5	Greater whitethroat	29
Wryneck	8	Turtle-dove	May 7
Little grebe	11		

Edward Newton ; Elden, June 17, 1845.

Dates of Arrival of Migratory Birds at Stetchworth, in 1845.

Black and white wagtail.....	Feb. 11	Nightingale	April 23
Lapwing	28	Lesser whitethroat	24
Wryneck	April 6	Cuckoo	24
Chiff-chaff.....	12	Willow-warbler.....	28
Blackcap	12	Turtle-dove	May 1
Greater whitethroat	16	Red-backed shrike ..	3
Redstart	16	Tree-pipit	15
Swallow.....	21	Spotted flycatcher	25
House-martin	22	Swift	31

—*Alfred Newton ; Elden, June 17, 1845.*

Arrival of certain Summer Birds near Newport, Salop, in 1845. While on a visit at Loynton-hall, near Newport, Salop, I heard and saw some of our summer birds, perhaps rather earlier than usual, notwithstanding the backwardness of the season. On the evening of April 1, between 7 and 8 o'clock, I observed a flight of sand-martins (*Hirundo riparia*), as many as fifty, I should think, flying round and round at a considerable height in the air, over Blakemore-pool, near Loynton. They continued their evolutions for a quarter of an hour at the least, gradually descending, until they came to the surface of the water, where I watched them as long as the day-light would permit. I went to the same place the following morning, about 9 o'clock, in the hope of seeing them again, but not one was to be seen till about the same time again in the evening, although I was about the pool most of the day; they appeared in about the same manner and number, as near as I can guess, as on the previous evening. My impression upon first seeing them was that they had just arrived, but their similar appearance on the following evening argues perhaps rather against that idea. I may add that on the same evenings I was much pleased with hearing the curious "whorring" noise, peculiar, I believe, to this season of the year, made by the snipes, of which there is great plenty at Blakemore. The keeper informed me the noise was made by the wings, but at the time I heard it, the birds were certainly on the ground, which perhaps argues against the noise being made by the wings. I heard one last year, on disturbing it from its nest, make the same noise while flying round in the air. The chiff-chaff (*Sylvia loquax*) sang April 1; the willow-wren (*S. Trochilus*) April 7; and two swallows (*Hirundo rustica*) appeared April 7. — *W. Bree, jun.; Allesley Rectory, April 11, 1845.*

Dates of the arrival of Summer Birds at Epping, in 1845.

Swift	May 12	Greater pettychaps	May 11
House-martin	April 28	Nightingale	April 21
Sand-martin	19	Redstart	3
Swallow	2	Whinchat	25
Grasshopper warbler	21	Wheatear	13
Sedge-warbler	21	Tree-pipit	20
Wood-wren	23	Yellow wagtail	20
Willow-wren	6	Spotted flycatcher	May 14
Lesser pettychaps	2	Red-backed shrike	11
Whitethroat	23	Wryneck	April 6
Lesser whitethroat	22	Turtle-dove	May 12
Blackcap	13	Cuckoo	April 21

Swallow. — Two of these birds arrived on the 2nd of April, but I did not notice any others till the 16th, when they began to appear in tolerable plenty. *Whinchat.*—This

bird, formerly one of our most abundant species, has decreased greatly in numbers the last three or four years, and this season I have seen but a solitary bird. Many of the other summer visitors are less numerous than usual, particularly the willow-wren and black-cap.—*Henry Doubleday; Epping.*

Dates of the Arrival of our Summer Birds at Bonchurch, in 1845. I inclose my notes on the arrival of the summer birds in our neighbourhood. The list is more imperfect even than that of last year, but my time and attention have been nearly engrossed by other matters. When more at leisure I will give you my thoughts, and the result of my observations on the very interesting subject of *partial migration*.

Pied wagtail	Mar. 22	Blackcap	April 26
Wheatear	29	Cuckoo	May 2
Chiff-chaff	April 8	Sandpiper	2
Wryneck	17	Sedge-warbler	2
Whitethroat	18	Whinchat	5
Willow-warbler.....	19	Red-backed shrike	5
Swallow.....	21	Swift	6
Redstart	21	Night-jar	25
Nightingale	26		

Chas. A. Bury; Bonchurch, I. of Wight, June 14, 1845.

Dates of the Arrival of Summer Birds at Holmes Chapel, Cheshire, in 1845.

Cuckoo	April 1	Tree-pipit	April 27
Willow-wren	9	Redstart	27
Blackcap	16	Whinchat	29
Yellow wagtail	16	Garden-warbler	30
Swallow.....	17	Swift	30
Martin	19	European goatsucker	May 1
Wood-wren	20	Landrail	28

Holmes Chapel is situate about the centre of the county of Chester. I may add that although the winter has been longer and more severe than for some years past, I have observed that those birds which are our summer visitants have made their appearance earlier in many cases by some weeks than is their wont. For instance, the cuckoo, which seldom appears in this neighbourhood before the end of April or beginning of May, is recorded in my note-book as appearing on the 1st of April. So also with the redstart, whinchat, and several others. Can any of your correspondents give me a reason for this.—*T. W. Barlow; Holmes Chapel, Cheshire, July 10, 1845.*

Arrival of Summer Birds near Odiham, in 1845.

Chiff-chaff.....	Mar. 28	Sedge-warbler	April 22
Wheatear	April 3	Martin	22
Yellow wagtail	3	Swift	May 1
Swallow.....	10	Sandpiper	1
Cuckoo	22		

P. L. Sclater; Hoddington, near Odiham.

Notes on the Singing of Birds. When enjoying the softened sunshine a few evenings back, beneath the same beechen shade where first I formed an acquaintance with the 'Natural History of Selborne,' about twelve years ago, I chanced to read Letter XXVII., wherein the worthy author treats of the singing of birds; and it afterwards appeared to me that a similar *methodus*, as he terms it, applicable to the district in which I reside, would be acceptable to those who have imbibed a portion of his spirit

for local enquiry, and for the statistics of British Zoology. For six years, to use his own words, "I carried a list in my pocket of the birds that were to be remarked, and, as I rode or walked about my business, I noted each day the continuance or omission of each bird's song; so that I am as sure of the certainty of my facts as a man can be of any transaction whatsoever." I quote the foregoing passage as being worthy of all commendation and imitation. How frequently does he refer to his list and to his journal, wherein were written all the laws of Nature which had come to his knowledge, like a lawyer to his statute-book. Linnæus trusted nothing to memory; Audubon insists on the use of the pen over the pencil: therefore I say to him who would make any progress in out-door Natural History, let him keep a journal.

Water-ouzel *Cinclus europæus* ... Sings all the year.

Missel-thrush *Turdus viscivorus* ... Third week in January on to the first week in June.

Song-thrush *Turdus musicus*..... Fourth week in January on to the second week in July

Blackbird *Turdus Merula* Fourth week in January on to the second week in July.

Ring-ouzel *Turdus torquatus* ... Third week in April.

Skylark *Alauda arvensis*..... Fourth week in January on to the third week in July.

Meadow-pipit *Anthus pratensis* ... Third week in April on to the third week in July.

Tree-pipit *Anthus arboreus* ... Second week in May on to the fourth week in June.

Rock-pipit *Anthus petrosus*..... In April.

Pied wagtail *Motacilla alba* week in March on to the first week in October.

Hedge-accentor ... *Accentor modularis* Second week in February on to the first week in August.

Redbreast *Sylvia rubecula*..... Sings all the year.

Whin-chat *Saxicola rubetra* ... Third week in April.

Stone-chat *Saxicola rubicola* ... First week in April on to the third week in June.

Wheatear..... *Saxicola Œnanthe* Second week in April.

Redstart *Saxicola Phœnicurus* Fourth week in April.

Blackcap *Saxicola atricapilla* Fourth week in April on to the third week in July.

Greater pettychaps *Saxicola hortensis*... Second week in May on to the third week in July.

Whitethroat *Saxicola cinerea* ... Fourth week in April on to the third week in July.

Lesser whitethroat, *Sylvia garrula* Second week in May.

Wood-wren *Sylvia sibilatrix* ... First week in May on to the second week in July.

Willow-wren *Sylvia Trochilus* ... Fourth week in April on to the third week in July.

Sedge-warbler..... *Sylvia Phragmitis*... First week in May on to the second week in July.

- Gold-crest *Regulus auricapillus*, Third week in February on to the third week in July.
- Chaffinch *Fringilla cœlebs* ... Fourth week in January on to the second week in July.
- Green grosbeak ... *Fringilla chloris* ... Second week in March on to the first week in August.
- Common linnet ... *Fringilla cannabina*, All the year round except at moulting-time.
- Mountain-linnet... *Fringilla montium*... Winter months and early spring, during its stay.
- Goldfinch..... *Fringilla carduelis*, Second week in April on to September.
- Common bunting, *Emberiza miliaria*, Second week in January on to the second week in August.
- Yellow bunting ... *Emberiza citrinella*, Second week in February on to the third week in August.
- Reed-bunting *Emberiza Schœniclus* Second week in April.
- Chimney-swallow, *Hirundo rustica* ... Fourth week in April until his departure.
- Common Wren ... *Troglodytes europæus* In February or even March on to the third week in November.
- Common cuckoo ... *Cuculus canorus* ... First week in May on to the first week in July.
- Ring-dove *Columba Palumbus*, First week in February on to the first week in October.

Grey wagtail *Motacilla Boarula*. I have placed this *Motacilla* apart from his cousin, the better to call attention to his song, of which I can find no mention in several authors of repute whom I have consulted. The bird is no great songster, being neither musically disposed nor gifted with any notable powers of song, but I possess at least two notices of having heard it, once in our garden, and at another time by Whittingham water; in both instances it was emitted by the bird when flying, his wings having a fluttering motion, and his song partaking also of the character of that of the meadow-pipit.

There are other birds of song which I ought to have mentioned, but am unable to do so with precision; such as the creeper, the house-martin and the tits. But I must not omit the part enacted by the little cole tit, who, late in March, and all through April, makes each plantation ring with his notes of glee, as he explores the buds of the larch. It is evident, then, that most of our songsters cease their notes in July; of those which resume their notes for a brief season, or are heard occasionally throughout the year, I must enumerate the following:—

Missel-thrush	Hedge-chanter	Chaffinch
Song-thrush	Whitethroat	Common bunting
Blackbird	Wood-wren	Yellow bunting
Skylark	Willow-wren	

Of these I never fail to hear the voices of the missel-thrush, skylark, hedge-chanter, chaffinch and yellow bunting during every autumn: here the chaffinch and skylark are preeminently autumnal songsters. Birds that sing as they fly are more numerous than an indifferent observer would suppose.

Dipper, frequently	Blackbird, occasionally
Missel-thrush, frequently	Skylark, his usual method
Song-thrush, occasionally	Meadow-pipit, his usual method

Tree-pipit, his usual method
 Rock-pipit, his usual method
 Hedge-chanter, rarely
 Redbreast, very rarely
 Blackcap, rarely
 Whitethroat, a favourite method
 Willow-wren, rarely
 Chaffinch, very frequently

Green grosbeak, very frequently
 Common linnet, very frequently
 Common bunting, frequently
 Yellow bunting, very rarely
 Chimney-swallow, occasionally
 Common wren, rarely
 Grey wagtail (*Motacilla Boarula*), observed only twice.

In the foregoing lists I have made use of the English and scientific names adopted by the Rev. L. Jenyns, in his excellent work on the British Vertebrata. — *Archibald Hepburn; Whittingham, June 27, 1845.*

(To be continued).

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from page 1022).

DIVISION VI.

THIS division, containing all the water-birds which are not of accidental occurrence, may further be subdivided into minor groups, as follows: —

- a. Those which are truly indigenious, remaining all the year round.
- b. Those which remain during the summer and nestle, but leave in winter.
- c. Those which pass the winter here, leaving in spring.
- d. Those which are regular migrants, passing through Belgium in spring and autumn, without stopping to breed.
- e. Those which appear at irregular periods during all the winter months, but which do not sojourn in this country for any length of time.

It is to be remarked that some birds will be found in two different subdivisions; for instance, *Gallinula chloropus* will stand in the *first* group, because a certain number remain all the year with us; and in the *second*, because by far the greater part of them leave the country during the first winter months, coming back to nestle in spring.

Group a.

This, as will be seen, is remarkably deficient in species.

Common Heron, *Ardea cinerea*. This fine bird is common with us, a couple or two being found on nearly all the quiet ponds or small lakes in the country. In winter, during hard frosts, it resorts to the banks of rivers; and on a cold dreary winter's day, the sight of a solitary heron, slowly and drowsily winging its way over the surface of

the stream, adds not a little to the beauties of the scene. This bird often stands on trees near to the water's edge, from whence it observes its finny or amphibious prey. I know of no instance of the heron forming communities or heronries in any part of Belgium. During the whole of last summer, a pair of these birds passed every day, in the morning at day-break and in the evening at sunset, over my habitation, uttering loud cries and flying in large circles. I believe they went to feed during the day-time, on a large sheet of water that lies in the direction they took, and returned in the evening to roost in the woods at a considerable distance. I cannot understand how they could leave their young or nest, either for a whole day or night.

Moorhen, *Gallinula chloropus*. On ponds and lakes in summer, on streams and rivulets in winter. Very common. The greater number leave us during the first fine days of spring. When several couples or families have taken possession of a sheet of water, each of them seems to keep to a particular corner, and not to intrude on the domain of its neighbours; day after day the same birds may be made to rise from the very same bed of reeds. This bird is essentially nocturnal and crepuscular, emerging from its hiding place amongst the rushes at dusk; all its movements in the water have a circular course, and it is pretty to watch the nod it gives with its head and neck at each strike it makes at the water with its feet: it continually beats the surface with its tail while swimming.

This water-fowl sometimes incubates three times during the course of the year, but in general only twice. The young return to rest in the nest for some time after they can swim, which is as soon as they have left the egg.

Common Cormorant, *Phalacrocorax Carbo*. Common on our shores; sometimes follows up our rivers during the winter, at which time a portion of these birds seem to leave us. I am unable to say whether the cormorant ever nestles here, as my living in the interior of the country has precluded proper observation of the animated beings which frequent our shores.

I beg the readers of these papers to take this, and the few years I have devoted to the study of Ornithology, into consideration, and to excuse the paucity of facts relating to them which I shall have to furnish. I hope in time to be enabled to observe their habits with more care, and will then furnish Mr. Newman with the result of my notes, for insertion in that ably conducted and most useful publication, 'The Zoologist.'

Sandwich Tern, *Sterna Cantiaca*, (*Sterna Boysii*, *Lath.*) Exceedingly common on the downs all along our sea-shore from France to Holland. This bird is not shy, and even the report of a gun, that greatest enemy of the feathered race, does not intimidate it. It sometimes nestles on the sands amongst the grass and bushes.

Common Tern, *Sterna Hirundo*. Very common on our shores and to a certain distance up all our rivers. This species does not unite in flocks, like the preceding species, in the company of which it is often seen. It also nestles with us, but more seldom than the Sandwich tern.

Black tern, *Sterna nigra*. This is an inland species, and of very rare occurrence at sea. It is common on most of our marshes, lakes and rivers, and nestles on their banks amongst the reeds. During severe winters many of them leave us, but they cannot migrate far, as two or three days fine weather seldom fails to bring them back to their habitual haunts.

Black-headed Gull, *Larus ridibundus*. Very common at sea and on our rivers; in winter the greater number resort to the sea-shore, and then numbers are caught by means of nets, and sold to the inhabitants of our towns, who keep them with clipped wings in their gardens, for the purpose of destroying the worms and insects. After severe storms solitary birds are sometimes seen very far inland.

Herring-gull, *Larus argentatus*. Common during the whole year on our shores. The number of these birds seems to increase during the winter months, at which time they are commonly seen on the Scheldt. I am sorry to know nothing of its habits.

JULIAN DEBY.

Lacken, July 5, 1845.

(To be continued).

Ferocity of a Magpie. On Wednesday morning last, about break of day, as a cart-er was proceeding through Salmsbury, on his way from Preston to Blackburn-market, he heard a strange noise in a field by the road-side. On looking over the hedge, he saw a magpie attacking a fine half-grown rabbit, and endeavouring to pick out its eyes. So intent was it upon its prey, that it was not until the man was within a few yards of them that he could induce the murderous assailant to quit its pursuit. He caught the rabbit, but it was so much injured by the fierce assaults of the magpie, that it died shortly afterwards.—*Lancaster Gazette*, June 21, 1845.

On the two British Species or Varieties of the Nutcracker. In a paper lately read before the Institute of Belgium, a belief was expressed by the author, M. de Selys Longchamps, that the nutcracker of Central Europe is a distinct species from that which is found in Scandinavia.

This opinion was founded on the examination of a number of these birds, many of which migrated during the last autumn into Belgium. The chief distinction appears to be in the greater thickness and strength of the bill of the northern bird; and as both varieties have been killed in this country, the subject becomes of considerable interest to the British ornithologist. Mr. Gurney's nutcracker, killed near Yarmouth in October last, which probably was one of the same flock that appeared in Belgium, and which I have figured in the margin, is a very characteristic specimen of the thin-billed variety, and I have accordingly also annexed a drawing of its beak,* and that of an example of the other variety in the possession of Mr. Yarrell, by which the difference will be immediately seen. The much greater length of the upper mandible in this bird, also immediately distinguishes it from *Nucifraga brachyrhynchus*, and that not only in appearance, for whatever may be the use made of its more powerful beak by the latter bird, the thin flat point of the beak of *N. caryocatactes* is evidently incapable of performing the action from which the species has derived its name. A nutcracker in the gardens of the Zoological Society, an example of the thin-billed variety, is, as I am informed by Mr. Yarrell, fed upon hemp-seed, and though very fond of the kernels of nuts, it never attempts to obtain them by breaking the shells for itself. The contents of the stomach of Mr. Gurney's bird mentioned Zool. 824, also show that the general nature of the food of this variety of the nutcracker consists of insects; and if it should eventually be shown to be distinct from *N. brachyrhynchus*, it is to be hoped that it will receive a more appropriate name. Temminck's description of the genus *Nucifraga*† corresponds



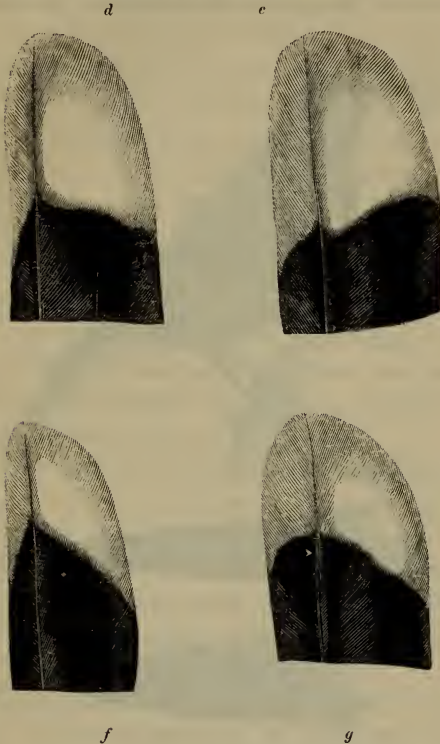
a. *Nucifraga caryocatactes*. b. Beak of the same.
c. Beak of *N. brachyrhynchus*.

to be distinct from *N. brachyrhynchus*, and that not only in appearance, for whatever may be the use made of its more powerful beak by the latter bird, the thin flat point of the beak of *N. caryocatactes* is evidently incapable of performing the action from which the species has derived its name. A nutcracker in the gardens of the Zoological Society, an example of the thin-billed variety, is, as I am informed by Mr. Yarrell, fed upon hemp-seed, and though very fond of the kernels of nuts, it never attempts to obtain them by breaking the shells for itself. The contents of the stomach of Mr. Gurney's bird mentioned Zool. 824, also show that the general nature of the food of this variety of the nutcracker consists of insects; and if it should eventually be shown to be distinct from *N. brachyrhynchus*, it is to be hoped that it will receive a more appropriate name. Temminck's description of the genus *Nucifraga*† corresponds

* By some mistake the figure of the beak of this bird (Zool. 824), was stated to be one half of the natural size; it was intended to be two-thirds.

† [Temminck's description is as follows: — "CASSE-NOIX, *Nucifraga* (*Bris.*) Bec en corne long, droit, effilé à la pointe; mandibule supérieure arrondie, sans arête sail-

so exactly with the thin-billed nutcracker, that there can be no doubt, not only of its having been taken from this variety, but also that he was unacquainted with *N. brachyrhynchus*. The other distinctions between the thick and thin-billed nutcrackers are the greater strength of the feet and claws of the former, a circumstance noticed by Brehm, who described them as two species under the names of the long and short-billed nutcrackers, and the different form of the white mark at the end of the tail, which, in *N. caryocatactes*, is much straighter than in *N. brachyrhynchus*. This, with the other distinctions which I have mentioned obtain more or less in all the specimens which I have had an opportunity of examining, but even should they not be shown to arise from difference in age or sex, I hardly think that in the absence of better opportunities of ascertaining the habits and food, and comparing the anatomy of the two varieties, they are sufficient to constitute them distinct species. The greater strength of the feet and beak of *N. brachyrhynchus* cannot certainly be considered to arise



d, e. 1st and 2nd tail-feathers of *N. caryocatactes*.
f, g. Ditto - - of *N. brachyrhynchus*.

lante, plus longue que l'inférieure, toutes deux terminées en pointe obtuse et déprimée. Narines basales, rondes, ouvertes, cachées par des poils dirigés en avant. Pieds, trois doigts devant et un derrière; l'extérieure soudé à sa base; tarse plus long que le doigt du milieu. Ailes acuminées, 1re. rémige de moyenne longueur; les 2e. et le 3e. plus courtes que la 4e., qui est la plus longue. — Ce genre est composé de la seule espèce européenne qui paraît former le passage du genre *Corvus* à celui du *Picus*, non seulement par ses mœurs, que nous connaissons depuis peu de temps, mais aussi par la forme du bec, qui ressemble, sous plusieurs rapports, à celui de quelques pic étrangers; en observant que chez ceux-là les deux mandibules sont comprimées à la pointe, et que dans le Casse-noix, elles sont déprimées, à mandibule supérieure plus longue que l'inférieure. Il le fallait ainsi, pour que l'oiseau pût avoir dans cette mandibule allongée un instrument qui remplace la langue pointue et extensible au dehors dans les pics. Le Casse-noix escalade les arbres et en frappe l'écorce, qu'il perce à coups de bec; sa nourriture consiste en larves perforées, mais aussi en fruits, noix, noyaux et même en voieries; il vit et émigre en grandes bandes; niche dans les trous naturels des arbres; sa mue est simple et ordinaire; les sexes et les jeunes diffèrent peu à l'extérieur."—Man. d'Om. 1re. ptie. 116.—*Ed.*]

from age, for Mr. Yarrell's specimen, the beak of which I have figured, is unquestionably a much younger bird than the caryocatactes of Mr. Gurney; but the elongated upper mandible of the latter bird may, I think, be referrible to such a cause, the more so, that in several younger birds of the same variety which I have examined, this peculiarity is much less perfectly developed: and the form and greater size of the marks on the tail of the same bird appear, as in the case of the male nightjar, to be very probable indications of sex. In conclusion, it is to be hoped that from the greater facilities possessed by continental naturalists of investigating this subject, we shall, before long see some more satisfactory explanation of the distinctions of the varieties of the nutcracker, founded on actual observation of their habits and internal anatomy. — *W. R. Fisher; Great Yarmouth, July, 1845.*

Siskins breeding in confinement. One of the females of two pairs of siskins which had been given to me having unfortunately died, early in 1844, I placed the remaining female and a male apparently of the same age, in a large oblong wire cage with materials suitable for the construction of a nest, which, however, they made no attempt to form. Having this year turned out the male, and substituted an older bird, the pair, about the middle of May, showed evident signs of an inclination to breed. I then put up two forked sticks at the one end of the cage, on one of which I placed a nest of the red-backed shrike, and on the other one of the reed-warbler; the bottom of that end of the cage which contained the nests being covered with soft green moss. The female almost immediately pulled down the nests, and scattered the materials about the bottom of the cage; but she soon left them, and began her nest on the moss near the corner of the cage, which she drew about her, turning herself frequently round, the latter action being accompanied by a slight motion of the wings. The nest was completed in about a fortnight, and was very neat and substantial. It was composed of moss, mixed with some of the materials of the other nests, and a little cotton wool, and was principally the work of the female. The first egg was laid on the 6th of June, and by the 12th six were deposited. The colour of the egg is bluish white, spotted at the larger end with pale rust colour: the weight 23 grains. My object being to obtain the eggs for my collection, I removed them as soon as the number was completed, and am consequently unable to give any information as to the time of incubation, &c.—*John Smith; Great Yarmouth, June 17, 1845.*

Note on the occurrence of a Thrush new to Britain, in Ireland, in the year 1838. — *Pycnonotus chrysorrhæus, (Swainson).* — At the meeting of the British Association held at Cork in 1843, I exhibited at the Natural History Section an example of this African species sent for inspection from the collection of native birds, or those killed in Ireland, belonging to Dr. Burkitt of Waterford. The following particulars respecting the bird, though mentioned at the meeting, have not been published. Dr. Burkitt "purchased it from a country lad who brought it into Waterford in January, 1838, with a number of blackbirds [*Turdus Merula*] and snipes, and who thought it was a hen blackbird: he shot it at Mount Beresford, three and a half miles from Waterford." There can therefore be no doubt of the specimen having been killed in this country. — *W. Thompson, in Taylor's Annals, June, 1845.*

Anecdote of a Lark's Nest. A lark's nest was discovered in a field in which some cows being tethered had eaten the pasture close to it, but had left a tuft around it, in which the birds remained unharmed and unconcerned. — *John Fremlyn Streatfeild; Chart's Edge, Westerham, July 9, 1845.*

Anecdote of the affection of Bullfinches for their Young. I was much amused at an occurrence which took place a few days ago, showing the affectionate attachment of these pretty and ever cheerful birds to their offspring, and illustrating the gross ignorance which is so frequently met with in the country, of the *cause* of events, that upon a little reflection may easily be traced to a simple and reasonable origin. A lad, who is the son of my gamekeeper, having discovered in the keeper's garden a bullfinch's nest, with three young ones in it, and but a few yards from the house-door, watched the nest till the young birds were full-fledged, and then, unfortunately, took them and put them in a cage hung up in a tree close to the bush where the nest had been built. On the outside of the cage he placed a perch for the old birds to rest on while feeding their young ones through the bars of the cage; this they continued to do most sedulously for a considerable time. Previous to the old birds' arrival with food, which took place at intervals of but a few minutes, the young birds seemed to have a foreknowledge of their parents' coming, and fluttered about in the cage, and roused themselves up from their before quiet and half-a-sleep state, chirping and showing every demonstration of anxiety and pleasure at the expected arrival; and no sooner had that event taken place, and the young ones received what the old ones had brought for them, than all was quiet again, until just previous to the next arrival;—these proceedings continued for many days. On one occasion, I saw this process carried on while a friend and myself sat within a few yards only of the cage, resting ourselves in the heat of the day after fly-fishing. The old birds made their appearance several times, and after rather suspiciously eyeing us from a neighbouring tree, fled to the perch on the cage, and there delivered their burthen to their young ones. About three or four days after this, the keeper's son told me the old birds had ceased to come any more to feed their young ones, which he had then to do himself, though he said he often saw the old birds about, and thought they must have made a fresh nest somewhere near. This proved to be the case, and he found the old hen bird sitting upon five eggs, in a laurel-bush close to the tree on which the cage hung, and if not within sight, quite within hearing of her former brood, but about whom she and the other parent bird seemed to have given up all further trouble, considering they were old enough to be then left to the fostering care of the keeper's son. However, it so happened about a week afterwards, that from extremely cold evenings and nights, and several successive days rain fell, and of course the few boughs put over the little bullfinches' cage to keep off the too powerful sun, failed to have the same effect with regard to the heavy rains; and then it was that one day the old hen-bird was seen again hovering for a short time about the cage, endeavouring to get at the young ones, and soothing and consoling them by every means in her power, and the three young ones were found at the bottom of the cage, cold, shivering, chirping and wailing with that peculiar melancholy note and plaintive call young birds so often use in seeking the aid of their lost parents. The lad took the cage into the house, and placing it near the fire, two of the young birds recovered, but the other unfortunate nestling died. The lad seemed very sorry for the loss of his bird, but said he was afraid he should lose them, "for a neighbour had told him he would find at last that the old birds would be sure to poison the young ones, when they found they could not release them from their imprisonment:" and this the boy fully believed. The old bird was shortly afterwards seen again on her nest, performing her allotted task of incubation. How singular the instinct which taught her to know exactly how long it was necessary to feed the first brood, ere she dared to leave them to feed themselves with the provisions supplied by

their young master, in order that she herself might the more sedulously attend to the eggs on which she was then sitting, and which were probably laid with a view to that circumstance, and which she knew would no longer permit of her absence from them, without endangering the future expectations of a second family; and yet, when she heard the note of sorrow and lament from her first-born, she instantly flew to their relief, and staid as long with them as she dared to remain absent from her eggs. A little warmth and timely cherishing soon restored the two little bullfinches to their wanton merriment, and removed all the evil effects which had been wrongfully imputed to the unnatural and murderous attempt of their attentive parents, but arose from their young ones' previous wetting and having been exposed to the cold night-air. *W. H. S. ; Hatton Hall, July 10, 1845.*

Occurrence of Aquatic Birds near Odiham. The scoter (*Oidemia nigra*) has occurred twice in winter at some water in Basing parish. I never heard of its coming so far inland before. I may add also the Egyptian goose, and summer duck of North America (*Anas sponsa*). This last bird I could never recognise, till I saw the description of it in the 'Pictorial Museum of Natural History.' I think it had most probably escaped from some place where it had been turned out.—*P. L. Sclater ; Hoddington, near Odiham.*

Remarkable Duck's Egg. I have met with a *lusus nature* lately, of which (as I have never seen any notice of it) I take the liberty of sending you an account. A few days before I came up to town, a very large egg was laid by a duck at a farmer's near us (at Tongham, four miles from Farnham). My father happened to be making a professional call there at the time they were consulting on the egg, and it was blown in his presence, when only one white and yolk came out, but a large opaque body was left in the egg; this, on a larger opening being made, turned out to be a *perfect egg*, shell and all, of the usual size. Since then the eggs have come into my hands, though I am sorry to say rather the worse for their transit to Farnham and then here. The same week the duck laid another precisely similar egg, but rather less.—*W. O. Newnham ; Chaplain's House, Guy's Hospital.*

Description of an Egg of the common Duck. It is of the usual size and shape, but is covered, with the exception of a band in the middle, about half an inch wide, with a greenish and very minute incrustation. On submitting a small portion of the shell to the microscope, the colouring matter appears in the shape of minute rings or circles, enclosing semitransparent convex pustules or spots, and presenting the appearance of an eye, from having a small concentric ring near its centre, of a lighter colour. The egg at first sight has the appearance of having been painted a dark green with a hard brush; but the microscopic test leaves no suspicion that such could have been the case. Washing has no effect in removing any portion of the colouring matter. The egg was laid in this neighbourhood about two months since.—*J. M. Dashwood ; Barton, near Lichfield, June 7, 1845.*

*Notice of the Fauna of Norfolk.**

THIS is a book after our own heart: it breathes the true poetry of Nature. We believe it is not considered by any means essential to read a book previously to reviewing it; but we began our task with a light heart, and found it impossible to lay the volume aside until we had perused it from end to end. This is what we consider a test of merit; for those books which are just opened, glanced at, and then, without a feeling of regret, laid by for some more convenient opportunity, are very often laid by for ever.

The little publication exactly resembles — and we know no higher praise — a series of extracts from ‘The Zoologist.’ There are many passages that Mr. Atkinson, Mr. Waterton, Mr. Bury or Mr. Knox might rejoice to have written. The best of these passages relate to birds; but as our pages will shortly be occupied with a somewhat more complete and elaborate account of the Norfolk birds, we refrain from quoting this portion of Mr. Lubbock’s work, lest we forestall the information about to be laid before our readers in an original form. In the mean time we cordially recommend the work to naturalists, assuring them that while it contains abundance of true philosophy and true science, it is totally free from the jargon now so commonly imposed on the world under these honorable but much-belied appellations.

The following extracts about fishes will be read with interest by every naturalist.

“In the present day, when all articles of food are dear and increasing in price, perhaps it would be wise to rely more than we do upon the neglected inhabitants of our fresh waters. The ‘Quarterly Review’ has lately put forth a strong article upon this subject, and a little consideration will convince any one, that fresh-water fish might with care, as to continual supply, be made of far greater utility than they are at present amongst us. On many parts of the continent a river seems to be regarded as a cornucopia—every one lacking dinner looks therein for it, and with great success. In that spot of classic memories, Vaucluse, where the fountain gushing from the rock becomes at once a river, all the peasantry appeared to rely upon its waters for food; here was seen one man groping in the bank for crawfish—here another taking up his eel line; children were everywhere busily employed in catching minnows for eel bait. On going into a cottage and asking for something to eat, the good woman explained that she had nothing, but called to her husband who was digging close by. He went down to the stream, walked in, lifted up a net somewhat resembling an English bow-net, found nothing; waded down stream about ten yards, took up another of these en-

* Observations on the Fauna of Norfolk. By The Rev. RICHARD LUBBOCK, Rector of Eccles. Charles Muscatt, Norwich: Longmans, London. 1845.

gines, and brought back three moderate sized trout, which in about twenty minutes were smoking on the table. In spite of this universal demand, fish were plentiful; the fly-fisher had abundant sport, and universal civility from the very people whose storehouse he was thus rifling.

"It is probable that the indifference amongst us to fresh-water fish partly arises from our ignorance of the best mode of cooking some species. Bream, which is the most despised kind here, is, by the Dutch mode of cookery, made really savoury meat. Just at this period, when we have a railroad completed through the centre of our fen district, the thought naturally occurs, how far this may alter the demand for, and consequently the supply of, fish. A pleasing little work, recently published by the Herr Boccus, proves clearly what certain and considerable profit may be made by pools, properly stocked and well managed; he shows by figures that a few acres are made to produce a large rental. In the district of which these pages treat, the fishing of fifty acres of water, stored with pike, perch, tench and eels, has been given to one man, in lieu of parochial relief to his family, and the individual did not appear to consider himself favoured by the arrangement.

"Another point to be considered, is the great irregularity in the price of fish in different places. Pike have indeed for years maintained a steady though not a high price in this county; but perch are often a drug in the market, commanding no price whatever, yet, from inquiry in London fish shops, few are more costly in the metropolis than large perch. Were this known, and the demand made steady, many of our waters could easily furnish the supply required. Indeed, the very abundance of fresh-water fish in Norfolk, is the cause of the comparative indifference with which they are regarded—what is very plentiful, is seldom very valuable on the spot where first produced. The article in the *Quarterly* before alluded to, speaks of skate being often flung aside as soon as caught in the west of England, when the neighbouring poor are in want of food: bushels of roach, bream, and rud, are here left in the same manner, because nobody will eat them.

"They manage these matters with more discretion in France. When fishing some years ago in Normandy, on a capital stream, a 'great logger-headed chub' used now and then to make his appearance amongst the trout, which intruder on my fly I was wont immediately to consign again to his element. Having just landed a large one, and pushed him from the bank into the water, I heard a hurried exclamation from a female voice behind me, of which nothing was distinct but the perpetual 'Mon Dieu.' On inquiry, I found the poor woman perfectly horror struck at my thus flinging pearls away; I thought she was going to weep, as she explained, that had she but the charming fish which Monsieur had just dismissed so unceremoniously, she would have made of it 'quelque chose superbe, magnifique.' To comfort her, I promised that should any more visit me, they should be preserved, and she pointed out that I must pass her cottage on my road homewards. In the evening I left three there, and on the following day was as usual on the river bank, when I heard the same voice, and received a most hearty invitation to dine off my own chub. As I had breakfasted early and was sharp set, this was by no means disagreeable; besides, I was curious to know what kind of viand her cookery would make of this fish. It was as she had promised, very good; the scales and bones were absent, the watery taste was all gone, the flesh was firm and sweet in flavour, and altogether it might be regarded as a real victory achieved by the *cuisinière* over stubborn materials. I have mentioned this anecdote, to show what a little pains in cooking will do for even chub, the coarsest of fish. The rud, which is

most plentiful upon the broads, and grows to a most respectable size — a pound and a half and two pounds commonly — is probably quite as good a fish for the table as the carp, were some care bestowed upon its preparation,”—p. 125.

“The Smelt (*Salmo eperlanus*, Linn.) regularly comes up in spring to spawn, and stops not till compelled by some insurmountable barrier. In Norwich, the pool at the New Mills is the rendezvous for these fish, which are there taken of the largest size. A large casting net is employed in the capture; and perhaps the Norwich ‘smelters,’ as they are called, excel all England in the management of this particular net. Their profits now-a-days are much curtailed, although the earlier smelts are sold in the market for five and six shillings a score. Formerly, twenty-five and even thirty score have been taken by one net in the course of a night. March is the time at which this fishery begins, which lasts until the middle or end of April, and a smelter may be deemed the personification of patience; hour after hour does he persevere, moored exactly in the same spot, with a torch attached to the side of his broad flat-bottomed boat — for this is a nocturnal occupation—in flinging his immense casting net, dropping the near side of it at each throw within three inches of the torch. One fortunate cast, if smelts sell well, may recompense him for hours of fatigue, wet, and cold; and he waits, like the losing gambler, for the lucky throw which is to brighten his fortunes. The smelts taken are kept alive, and a tank full of these beautiful fish is a very pretty sight. Besides these, a few gudgeons are taken, and a good many lamperns (*Petromyzon fluviatilis*). These last are sold to the eel-fishers as bait. It is a curious fact, that other fish greatly forsake the higher part of the river whilst it is occupied by the smelts spawning. Roach and dace are at this time very scarce, although plentiful enough before the smelts arrive; they then remove further down the river for a time, and, as they say here, ‘the fish are down because the smelts are up.’ I have known it at that time difficult to provide a few coarse fish for the sustenance of a tame heron.”—p. 129.

“The Burbot, or Eel Pout (*Lota vulgaris*) is taken in small numbers in the Yare, the Bure, and I believe the Waveney — principally high up the Yare near Norwich; but does not arrive at the size or exhibit the bright colours which it wears in the Swiss lakes, or even in the Trent in England. Seems here to prefer our slow running rivers to the broads; generally taken by hooks set for eels, and seldom exceeds a pound and a half in weight in the Yare. As is justly observed by Mr. Yarrell, this is a most superior fish for the table, and worthy far more care and attention than it has received. As just mentioned, it is not common in the district of the broads, but is far more abundant in the Thet, which flows by Larningford and Thetford: pailsful have been taken from Harling mill-pool, when the water has been let off that the brick-work might be repaired. It penetrates almost to the sources of rivers. I have known many caught, and some two or three pounds in weight, from the small streams which unite to form the Thet, in parishes adjacent to the place where this is written. Richly does it deserve the name of ‘Coney Fish,’ which it has from its habit of skulking in rat-holes and corners under the bank. I have stood by whilst a skilful hand was groping under the banks of a small brook for cray fish; and more than once, with a puzzled air, the fisherman said, ‘Here is a pout, Sir; but he has got so far into a hole, I can’t fasten upon him.’ Is very tenacious of life, and excessively voracious; will fatten well in stews, and eat fish chopped in pieces, frogs, flesh, or almost anything. When at Lucerne, I was looking at one of the tanks for fish, divided into compartments, and supplied with fresh water from a fountain in the centre, which are common in inn yards in Switzerland. In one division were small trout, in another eels, and in a third bur-

bots. Whilst I was considering these last, the scullion suddenly arrived with a plateful of the intestines of fowls, which he threw at once to the eel pouts. I certainly waited a few minutes, and did not see them begin their meal; but on visiting them the next morning, all thus bestowed had disappeared. They grow in Switzerland to the weight of six or seven pounds, and are deservedly in the highest estimation. At Yarmouth, the term 'eel pout' is given to an entirely different species, the *Blennius viviparus*, (see Mr. Paget's Sketch)."—p. 133.

"The Pike (*Esox lucius*). This fish is in Norfolk as principal an object of pursuit to the fisherman as the trout is in many counties. If a fishing party on the broads is talked of, pike are of course to be attacked. The fishermen who hire waters as a livelihood, mainly rely on the capture of this fish for their returns. Boys may be seen in the spawning season, busily employed in the mischievous process of snaring all the little worthless Jack they can find. The heron, in Norfolk, gets half his subsistence from the fry of this fish; those which were taken by falcons at Diddlington, had always small pike in their maws. Yet, in spite of all these enemies, the 'mighty luce or pike' still flourishes—like Burns' John Barleycorn, the more you persecute him the more he thrives. Mr. Yarrell, in his 'British Fishes,' has given some strong instances of success in Norfolk, and such are by no means rare; the memory of any practised fisherman recalls many such days of sport.

"On Ranworth broad, upwards of ninety pike, and many of them of large size, have been taken in a day by trimmers, by two amateur fishermen in the same boat. On Sutton broad, a very circumscribed and shallow pool, in March 1832, with fifty trimmers, twenty-six pike and a very large perch were taken. Four of these fish were from thirty-three to thirty-six inches in length, and many others weighed from seven to ten pounds.

"The largest fish, to the size of which I can positively speak, was taken a few years back from a small pool near South Walsham broad, and weighed thirty-six pounds. Four fish, weighing collectively one hundred pounds, have been netted in a day upon the same broad; yet some of the old fishermen protest that the pike of the present day are not to be compared to the giants of the olden time, and they refer to a period early in the present century, when for the last time the sea made a serious inroad over the marum banks, as the season when these Titans perished. As far as observation goes, there is a point in size to which a pike grows rapidly—good feed and water suitable being provided for him—and after that his growth is comparatively slow.

"The largest-framed fish I ever beheld, was found in the reeds on the verge of a broad in the summer of 1822: the water had receded so as to make him prisoner in a place so shallow as not to cover his back fin. Emaciated as he was—for his head was far the largest part about him—he weighed twenty-one pounds, and would in very high condition, I am certain, have reached thirty-five. He was accurately measured before being turned loose, and was forty-three inches in length.

* * * * *

"In Norfolk, the general mode of taking pike is by net, or by a trimmer. These trimmers are not with us the neat painted corks which are sold in tackle-shops, but a bundle of that species of rush, here provincially called 'boulders,' of which chair-bottoms are made; a mass of these, about fourteen inches in length, and the thickness of a man's arm, is bound together tightly at each extremity, about eight yards of sound string are added in the centre, and with a baited hook, the apparatus is complete. In

the capture of large pike, to have a large bait is of the first importance — a roach or rudd of nearly a pound is not too large; from its size it is exempt from the attacks of juvenile Jack. If small fish are used on a water where pike are abundant, the chances are that a small pike first meets a trimmer and either swallows or spoils the bait. These minor Jack are very often swallowed in turn by a full-sized pike; for a Jack of half a pound or three quarters, is not to be regarded as a mere shift to be used if nothing else can be found, but is, if properly mounted as a bait upon a large hook, the most tempting morsel which you can offer to a large pike. If, on the contrary, the little Jack has himself swallowed the roach, and is afterwards bolted in his turn, then comes the disappointment of the fisherman; you reach the unwound trimmer — you tow it in—a heavy weight replies to each pull—you draw on—you see the head of the monster—and now he sees you; slowly his head moves from side to side, as if he were shaking it at the disagreeable dilemma you have placed him in, when, with an air of sulky disappointment, he returns to you, from the *ima penetralia* of his stomach, the Jack first taken, and the next thing you see is the surge caused by his tail, as, at full liberty, he seeks the depths below.”—p. 137.

“The Tench, (*Tinca vulgaris*). Formerly the fishermen on the broads relied on the bow-net, and occasionally the trammel or flew, for all their success with this fish; but a plan has arisen of late years, and is becoming more and more general, which bids fair to supersede the use of these implements. “Tench catching,” as it is justly termed, originated with a family of the name of Hewitt, at Barton, all the members of which were fishermen and gunners. One of them observing the sluggish nature of this fish, attempted to take them with his hands, and often succeeded. The art has spread, and the system is better understood, so that at this time there are in Norfolk fishermen who, upon *shallow waters* — for in deep nothing can be done thus — prefer their own hands, with a landing net to be used occasionally, to bow-nets or any other engines. The day for this operation cannot be too calm or too hot. During the heats of summer, but especially at the time of spawning, tench delight in lying near the surface of the water amongst beds of weeds; in such situations they are found in parties, varying from four or five to thirty in number. On the very near approach of a boat they strike away, dispersing in different directions, and then the sport of the tench-catcher begins. With an eye like a hawk, he perceives where some particular fish has stopped in his flight, which is seldom more than a few yards: his guide in this is the bubble which rises generally where the fish stops. Approaching the place as gently as possible in his boat, which must be small, light, and at the same time steady in her bearings, he keeps her steady with his pole, and, lying down with his head over the gunwale and his right arm bared to the shoulder—taking advantage, in his search, of light and shade — he gently with his fingers displaces the weeds, and endeavours to descry the tench in his retreat. If the fisherman can see part of the fish, so as to determine which way the head lies, the certainty of capture is much increased; if he cannot, immersing his arm, he feels slowly and cautiously about until he touches it, which, if done gently on head or body, is generally disregarded by this sluggish and stupid fish; but if the tail is the part molested, a dash away again is the usual consequence. Should the fisherman succeed in ascertaining the position of the fish, which under favourable circumstances he generally does, he insinuates one hand, which alone is used, under it, just behind the gills, and raises it gently, but yet rapidly, towards the surface of the water. In lifting it over the boat side, which, it need not be said, should be low, he takes care not to touch the gunwale with his knuckles, as the very

slightest jar makes the captive flounce and struggle. On being laid down, the tench often remains motionless for full a minute, and then begins apparently to perceive the fraud practised upon it. The fisherman then, if he 'marked' more than one tench when the shoal dispersed, proceeds to search for it. If not, he endeavours to start another, by striking his pole against the side or bottom of the boat—several are generally close at hand. The concussion moves other fish, when the same manœuvres are repeated. In this way I have seen fifteen or sixteen good-sized table tench taken in a short space of time. And in the course of a favourable day one fisherman will easily secure five or six dozen.

"Here, it should be observed, that the 'run,' as it is termed, of a tench is different to that of a bream or a rudd; it is not straight or extended, but short, varying, and devious, something like the knight's move at chess: very often the fish halts within five or six yards of the place he started from. The advantages of this plan over bow-nets are great, when requisite adroitness is obtained. In the first place, a good-sized fish is more easily followed and taken than a small one; in the second, the disadvantages of bad neighbourhood are done away with, for, although the marsh-men are generally an honest set, yet bow-nets are sometimes examined before the owner arrives. In Norfolk, tench are estimated rather by measurement than weight; fourteen to seventeen inches is thought the length of a good table fish; one under twelve is deemed only fit for store. The growth of fish varies greatly in different countries; and I think Boccius, whose recent work on fish-ponds contains valuable information, exceeds the mark for England, when he speaks of tench averaging four pounds and a half, in emptying a piece of water. Four pounds would here be reckoned a *very* large tench."—p. 143.

"The Bream (*Abramis brama*) is found on all the broads in immense shoals. When preparing to spawn, they roll about like miniature porpoises; the water is discoloured by their working—here a nose appears, and there a back fin, whilst at intervals a plunge of affright amongst the multitude shows that large pike are busy. The pike follows in the wake of these shoals—as in Africa the lion hangs upon the outskirts of the countless herds of spring-boks and other antelopes, or as the wolf prowls upon the flank of a disordered and retreating army. It is a positive nuisance from its numbers in many places. If a bow-net is set for tench, bream crowd in ere they arrive, and exclude them. In perch fishing they consume the angler's best worms, tire his patience, and soil his fingers. Does not grow to the size in Norfolk which it attains in the Irish lakes, the Trent, Dagenham breach in Essex, and other localities. A bream of five pounds is here considered a very large one."—p. 146.

Capture of Colias Edusa on Barham Downs. Having heard that one or two of these beautiful butterflies had been seen in this neighbourhood, I went on the 9th instant in search of them; and although it was a very unfavourable day (a stiff breeze blowing from the west), I saw six, three of which I succeeded in capturing. On the 19th I again went after them, and caught three more. To-day (the 21st) I have again been out, and have caught eight more in the same place where I found the others. Of the whole number taken, five are females and nine males. Their early appearance perhaps prognosticates an abundant season. Notwithstanding the unfavourable season which we have hitherto had, I have taken six specimens of *Pieris Cratægi*, two of

that pretty little butterfly the Duke of Burgundy's fritillary (*Nemeobius Lucina*), and several specimens of *Melitæa Artemis*.—*John Pemberton Bartlett* ; July 21, 1845.

Occurrence of Colias Edusa near Canterbury. As *Colias Edusa* seems to be very abundant about this part of the country this season, perhaps some of your correspondents would be kind enough to send you short notices of their appearance in other parts. During the last week I have both seen and heard of their frequent appearance, although, till to-day, I have not been fortunate enough to have one in my possession, when my brother captured one in a saintfoin field, a locality of which they appear to be particularly fond. A friend of mine (Mr. Bartlett) however has been more fortunate, having captured five specimens. I have not yet heard of the appearance of *Colias Hyale*, though, as it is still early for them, I hope to be fortunate enough to capture some of them.—*John B. Harrison* ; July 19, 1845.

Occurrence of Colias Hyale near Leicester. Each successive season seems to prove the occurrence of these favourite butterflies further inland. I was much surprised to see *Colias Hyale* last week, on the 21st of July, in a lane north of Leicester. I had not my net with me, but I gave it a long chase, and had the mortification to observe it (a fine fresh male) settle repeatedly before me on a hot sandy bank, on the flowers of trefoil.—*H. W. Bates* ; Leicester, July 16, 1845,

On the appearance of Vanessa Polychloros. *Vanessa Polychloros* appeared on the wing the 31st of March; and for some time after no favourable day occurred without my seeing one or more specimens. One circumstance connected with the natural history of this butterfly somewhat puzzles me: it is far more frequent—at least we see a great deal more of it—in the early spring, than at any other period of the year; and yet, all the vernal specimens are such as have been produced in the previous summer or autumn, and have hibernated, or lived through the winter in the winged state, as we may infer from their faded, and sometimes even ragged condition. It is hardly to be supposed that every individual bred late in the summer, should survive the winter and reappear in the spring; some few at least, it is probable, must be accidentally destroyed and come to an untimely end during or before the time of their hibernation; or if not, at any rate, those which appear in spring ought not to be *more* in number than those which lie by in winter, if (as is supposed) *all* the vernal specimens have hibernated. How then are we to account for the fact, that the insect is more frequent in the spring than at any other season of the year? The very reverse is what one should expect; as is the case with *Vanessa Atalanta*, which also hibernates, and is usually very abundant in the autumn, and comparatively rare in the early spring.—*W. T. Bree* ; *Allesley Rectory, near Coventry*, July, 1845.

Name &c. of Erebia Melampus. Mr. Weaver's insect, figured in a preceding number (*Zool.* 729), has been submitted to that prince of lepidopterologists, M. Boisduval, who considers it distinct from *Erebia Melampus* of the continent; but since his decision has been made from an inspection of only two specimens, it is considered advisable to abstain from giving the species a new name, until he shall have examined a larger number. Mr. Weaver is now at Rannoch, occupied in capturing these butterflies, which he has succeeded in obtaining in the most perfect state; and a series of these will be sent to M. Boisduval, so that he will have the best opportunity of arriving at a correct conclusion on the subject. Mr. Weaver has also been fortunate in capturing many other rarities, a detailed list of which, with dates, localities, &c., will probably appear in the October number.—*Edward Newman*.

Capture of Ino Globulariæ, Agrotis cinerea and Crambus pygmaeus at Lewes. On

the 13th of June I proceeded to Lewes for the purpose of capturing *Ino Globularia*. The whole of the 14th was spent in carefully examining the Downs, but without success. On the 15th, Mr. S. Stevens joined me, and we each took one. On the 16th I took three males and one female, the first ever recorded as taken in England. The next day, I fortunately discovered a flock within a few yards of the spot where the others had been captured, and from which they were evidently stragglers. I soon secured a sufficient number for my own cabinet, and have a few left for my friends. The locality where these were found, was the side of a hill sloping towards the south-east, and having three small terraces a short distance above each other, where the herbage was much longer than on the more abrupt parts of the slope. The female is far more rare than the male, and as she seldom flies, is only to be taken with a sweeping-net. From my observation of the species, I infer that it is decidedly gregarious, but extremely local, so much so, indeed, that the most careful entomologist might search the Downs for days without seeing it, although at the time of its appearance. On the 16th, in the same valley, I took one specimen of *Agrotis cinerea* on a sugared ash-tree, and by sweeping, one of *Crambus pygmaeus*. — *J. Jenner Weir*; 17, *Grosvenor Park North, Camberwell, June 14, 1845.*

Capture of Polia occulta near Manchester. On the 26th inst., whilst on an entomological excursion about four miles from here, in Cheshire, I was most agreeably surprised to see a fine male specimen of *Polia occulta* resting upon a brick. I compared it with Mr. Curtis's figure, and find it to correspond in every respect. — *Jas. B. Hodgkinson*; *Dixon St., Hulme, Manchester, July 28, 1845.*

Note on Erastria venustula. On the 29th of June, whilst walking with a friend through a heathy part of the forest, I observed several specimens of this pretty little species, flying over and alighting upon the common fern: not having any entomological apparatus with me, except a couple of pill-boxes, I only secured two specimens. The next day I again visited the spot, but could not see a single individual. Mr. Bentley informs me that his father captured this insect in our forest more than forty years ago; but I believe no one has since met with it in Britain, except myself, at least, I am not aware of any other captures. — *Henry Doubleday*; *Epping, July 24, 1845.*

Miana strigilis and Æthiops. In the July number (*Zool.* 1006), Mr. Harding has made some remarks on these insects, which are not altogether correct, or only applicable to certain localities. Here, both insects appear simultaneously, are always found together, and exhibit every conceivable shade of colour, from the clear black and white of *strigilis* to the dull sombre hue of *Æthiops*. They continue on the wing for some weeks. I saw both for the first time this year on June 3; and last night (July 23) I shook fine and perfect specimens of both from the blossoms of the lime. I have raised a great number of both from larvæ which exhibited little or no difference from each other; in fact, have done all in my power to satisfy myself as to their specific identity or distinction, and must say I can only consider them varieties of one species. The only way of completely setting the question at rest, is to raise them from the eggs, and this I have not been able to accomplish, but perhaps some other entomologist may succeed. — *Henry Doubleday*; *Epping, July 24, 1845.*

Capture of Fidonia ericetaria &c. near Preston. I have received a letter from my brother, William Hodgkinson, to-day, recording his captures on the 21st of July, near Preston, and I think they are worth recording in the pages of 'The Zoologist.' He took thirty specimens of *Fidonia ericetaria*, seven of *Harpalyce unangulata*, twelve of

Hyria auroraria, and thirty-three of *Electra imbutata*. There never was more than a single specimen of *Fidonia ericetaria* ever taken near Preston before. My brother thinks he could have taken twice the number of this insect, had it not been so windy. *Hyria auroraria* and *Electra imbutata* were in profusion.—*Jas. B. Hodgkinson; Dixon St., Hulme, Manchester, July 24, 1845.*

Capture of Eupithecia togata (Hub.), a new British Moth, at Black Park, Bucks. I beat several specimens of this beautiful species out of a plantation of spruce firs, the middle of last June. The insect was first taken by Mr. Desvignes, and afterwards by Mr. Bond, Mr. Douglas, Mr. Standish, Mr. Muff and myself.—*Samuel Stevens; 38, King St., Covent Garden, July 18, 1845.*

Description of Eupithecia togata, a new British Moth of the Family Geometridæ. The colour is pale brown, with a variety of waved transverse lines: two of the most conspicuous of these are dark brown, nearly black; the first commences at the costa of the



Eupithecia togata.

fore wing, at about a third of the distance between its base and apex it is very irregular, and has several teeth or projections directed outwards or towards the exterior margin; the second also commences at the costa of the fore wing, and at about two thirds of the distance between its base and apex, this also is very irregular, and has several teeth or projections directed inwards; this second line is continued through the centre of the hind wings: between these two lines on the fore wings, but much nearer to the first or inner one, is a conspicuous transversely oblong discoidal dark spot: there are seven linear marks of the same dark colour arranged along the outer margin of the fore wings, and six along that of the hind wings: midway between the exterior transverse line and the marginal linear mark, is a waved dentated band, extending through both wings, and which, in the living insect, has a beautiful pink tinge, they however fade after death: at the base of the fore wings is a short dark brown line, elbowed outwards. The line below the insect in the above cut shows the breadth of the expanded wings.—*Edward Newman.*

Description of Eriocephala sulcatella, a small new British Moth of the Family Tineidæ. It appears that we have two distinct species of *Eriocephala* (*Lampronia*, Steph.) described under the name of *Calthella*, one by Mr. Haworth, the other by Mr. Stephens. My attention has been directed to these insects by Mr. Patten, an assiduous collector, who captured about fifty specimens of *Eriocephala* in May last, all of which have their wings sulcate, agreeing in that particular with Mr. Stephens' description of *Lampronia Calthella*, but not so with the species described by Mr. Haworth. I subjoin brief descriptions of the two species.

1. *Eriocephala Calthella*. Disk of the anterior wings perfectly smooth, of a bright metallic gold colour, the base, in some examples, slightly purplish; posterior wings light brown, with a golden tinge; head in both sexes ferruginous. This species exactly agrees with the continental specimens of *E. Calthella*. It is the *Phalæna Tinea Calthella* of Linnæus, Faun. Suec. 1432; and the *Tinea Calthella* of Haworth, Lcp. Brit. 573. It is found occasionally near London, but is not common. I took my specimens many years since from flowers in the meads near Ringwood, Hants.

2. *Eriocephala sulcatella, (Bentley)*. Disk of the anterior wings longitudinally sulcated, of a dark metallic gold colour, the base usually purple; some varieties are

slightly mottled with purple: posterior wings brown, tinged with purple: head of the male black, of the female ferruginous. This is the *Lampronia Calthella* of Stephens, Ill. Brit. Ent. Haust. iv. 361. It is common about London in May, and is usually found in the buttercup-flowers.—*W. Bentley*; 3, *Critchell Place, July 25, 1845.*

[It may not be amiss to add *Haworth's* description of *T. Calthella* and two varieties.

“*Tinea Calthella, atra, alis superioribus totis aureis, capite ferrugineo. L. Expansio alarum 3-3½ lin. Minuta. Antennæ vix corporis longitudine. Alæ superiores certo situ toto aureæ apparent: alias atræ. Differt a Ph. Frischella antennis basi minime auritis; capite ferrugineo; corpore quadruplo minore. Obs.—Alæ anticæ lente, basi læte purpureæ. β. Duplo minor, alis anticis nitidissime æneo-aureis, absque purpureo. γ. Duplo minor quam α, alis anticis cupreis, basi lente purpurascens.*” Ed.]

Larvæ of the species of Astyages. Early in June I found the larvæ of *Astyages nigricella* in tolerable abundance on the leaves of pear-trees. They were enclosed in slender cylindrical cases, and these stood nearly upright on the leaves to which the larvæ were firmly fixed. I have found the larvæ of a cognate species, *Astyages lutarea*, enclosed in similar cases, and attached to the leaves of oak-trees, and from one of these I reared the *Ichneumon* fly, (*Hemiteles areator*).—*Francis Walker.*

Captures of Moths with Sugar. From the different degrees of success which some of your correspondents appear to have met with, in their endeavours to capture *Noctuæ* by means of sugar, and from having succeeded myself in every attempt during the present and past month, I beg leave to offer a few remarks on the subject. In the first place I would say a word upon my method of making this alluring bait. Instead of mixing the sugar with water, I invariably substitute *beer*. I was led to adopt this plan from observing, a year or two since, some dozen moths drowned in a bottle of sugar and beer, which I had hung in a tree, to catch wasps in. Having mixed the sugar and beer, I boil it, let it cool, and bottle it for use. Before I use it, however, I add a small quantity of rum, which I believe to be the most attractive part of the composition. It is better to add the rum at the time of using the mixture, as when kept any length of time the scent will evaporate. Vinegar I fancy will be found to be nearly as effective as rum. One night I tried a mixture of vinegar and sugar, on some trees, and rum and the same kind of sugar on others, and could not discover any difference between the attractive powers of the two. Some of your correspondents appear to attribute their want of success to the *quality* of the sugar used. When neither rum, beer nor vinegar form part of the ingredients, I think there can be no doubt that the coarser and stronger-smelling sugars are best, but where these are used in sufficient quantities, the whiter and more refined sugars will answer every purpose. I one evening used two mixtures, one made of the darkest and strongest-smelling sugar that can be procured, the other with sugar of the best quality, with scarcely any scent. I added an equal portion of rum to each, and the result was like the rum and sugar just mentioned, I was unable to perceive that one was more attractive than the other, both being visited by numbers of moths. I cannot help thinking that want of success more frequently arises from the state of the atmosphere, than from the mixture used. Mild damp evenings, both just before and after rain, are sure to reward the entomologist for his trouble. Windy nights are generally bad, although I have once or twice had tolerable success on a breezy night, when the wind was blowing from the west or south-west, and the night was otherwise warm. If the wind blows at all strongly from the east or north, there is no chance of taking anything good; cold raw nights are also to be avoided. If the trees upon which the bait is laid are in a situation exposed to

the wind, should there be any, it is best to put the mixture on the side which is so exposed, as the scent is thus carried further. Should the wind be rather high, some should also be placed on the opposite side of the trees, as when once attracted to the spot, moths will more readily settle on the sheltered side. Instead of putting the sugar on in stripes, I find the better way is, if the tree is not very large in circumference, to lay it on thickly in a circle round the tree, it then runs down in narrow lines, and is thus more conveniently sipped by the greedy moths. Should the tree be of very considerable bulk, it can easily be laid on in the same manner on portions of the tree. I met with the greatest success in a small wood, where I sugared about a dozen oak trees. On the 4th of July, I took three specimens of twenty-one different species of moths, among which were the following. *Thyatira Batis* (twelve specimens), *Thyatira derasa*, *Polia herbida*, *Mamestra Persicariæ*, *Apatela Bradyporina*, *Acronycta Ligustri*, *Xylophasia caracterea* and *Polia bimaculosa*. About a week after, I took eleven more specimens of *Thyatira Batis*, and several other kinds different from those taken on the 4th. I have not yet been able to find the names of many, having no illustrated work on the subject.—*J. Pemberton Bartlett.*

Flowers and Shrubs most attractive to Lepidopterous Insects. As none of your abler correspondents have replied to Mr. Hepburn's enquiries (*Zool.* 482 and 946), respecting the flowers and shrubs most frequented by the nocturnal Lepidoptera; I beg to offer a few remarks on those from which I have met with the greatest success, and shall mention first,—

The Honeysuckle, the attractive properties of which are well known; in the neighbourhood of Ely, where *Deilephila Elpenor* and *Porcellus* are more plentiful than they are here, I have taken several specimens of each from this plant, with a few of *Sphinx Ligustri*, *Cucullia umbratica* (in abundance), *Plusia Iota* and *Chrysis*: but at Balingdon it seems of little use; I have had a fine plant in bloom for the last two months, but have only taken from it one specimen of *Sphinx Ligustri*, one of *Cucullia umbratica* and *Mamestra Brassicæ*.

The Jasmine is a great favourite with *Macroglossa stellatarum*, which I have several times seen eagerly enjoying its sweets, both in the middle of the day, when the sun was shining very hot on the plant, and also in the dusk of evening.

The Valerian is a very attractive flower; among others I have taken from it *Deilephila Porcellus*, *Ægeria Tipuliformis*, *Æ. Mutillæformis*, *Mamestra oleracea*, *Plusia Iota*, *Gamma* and *Chrysis* and *Polia dysodea*; with the last it is an especial favorite.

The Sweet William, Larkspur and Candy-tuft are also visited by most of the species mentioned above, but are not so attractive as the Valerian.

Amongst the wild flowers I have found, like Mr. Hepburn, the bladder campion (*Silene inflata*) the most attractive. I have taken from it two specimens of *Deilephila Porcellus*, and amongst the Noctuidæ may be mentioned *Agrotis segetum*, *Graphiphora triangulum*, *Hadena ochracea*, *H. capsicola*, *Xylina putris*, *Polia advena*, &c., and *Xerene adustata*, *Eupithecia venosata* and *Emmelesia decolorata*, many of which swarm round it.

The Ivy and Sallow being well known, and as your valuable periodical has already recorded several captures from them, I shall pass them and conclude with

The Reed, which appears to be less known, but which is a great favourite with the autumnal moths. From the blossoms of some reeds growing by the side of a small plantation near Ely, I captured on the 19th and 21st of October, 1839, specimens of *Orthosia Loti*, *O. macilenta*, *Gleba subnigra*, *Miselia Oxyacanthæ*, *Nonagria crassicorn-*

nis, *Phlogophora meticulosa*, *Polyphasia centum-notata* and *Oporabia dilutata*. — *W. Gaze*; *Ballingdon, August 6, 1845.*

Capture of Lepidopterous Insects at St. Osyth's. The following Lepidoptera were taken by Mr. Haggard and myself between the 3rd and 9th of July, near St. Osyth's, Essex.

Ægeria apiformis, Ardley-wood, by beating.

Mamestra nigricans (*Steph.*), one, *Mamestra suasa*, two, *Hadena gemina* and *Polia advena*, by sugar.

Apatela leporina, sticking on a post.

Hemithea smaragdaria (*Fab.*), five, among grass on the sea-wall.

Lobophora sexalisata, by beating.

Timandra emutaria (*Hub.*), one, among grass.

Margaritia lancealis, one, by beating.

Pœcilochroma maurana, Ardley-wood, by beating.

Cochylis griseana? Salt marshes.

Carpocapsa maritima (*Dale*), on the wormwood.

Anchylopera diminutana, one, Ardley-wood.

Crambus arbustorum, among grass.

Anacampsis ———? a new species, salt marshes.

Limenitis Camilla, just appearing.

Melitæa Athalia, worn and going off.

Apatura Iris, not out.

Hemithea smaragdaria has I believe been taken in Britain but once before, and then was bred by Mr. Parsons, of Southchurch, Essex, from a larva found by him in 1826, as recorded by Mr. Curtis in his *British Entomology*. — *J. W. Douglas*; 6, *Grenville Terrace, Coburg Road, Kent Road, July 24, 1845.*

Capture of Lepidopterous Insects at Lewisham and its vicinity, in 1845.

Depressaria purpurea, one, beat out of ivy, April 3.

Epigraphia Steinkelnerana, one, on palings, April 4.

Heribeia unipunctella, beat out of Ivy, April 21, one the 22, one the 23, four, 28.

Gracillaria stigmatella, one, on sallow-blossoms, April 21.

Xerene adustata, one, hedges, flying, April 24, one from ivy, June 25.

Anticlea derivata, one, hedges, flying, April 24.

Hypena rostralis, three, hedges, flying, April 24.

Smerinthus Populi, one, on palings, April 30, this is unusually early for the appearance of this moth.

Eupithecia abbreviata, two, on palings, May 1, one flying, May 2.

Argyrotoza Daldorfiana, two, apple-leaves, May 4, two, 9, four, 10.

Yponomeuta comptella, one, hedge, flying, May 19.

Hadena thalassina, one, palings, May 19.

Adela Reaumurella, one, grass, May 27, one 28, one 30 and one 31.

Porrectaria lineola, seven, grass, May 28, twenty, 31.

Argyromyges Rayella, one, hedge, May 28.

Incurvaria Oehmanniella, one, hedge, May 31.

Anarta heliaca, two, fields, June 1.

Euclidia Mi, one, field, June 1.

Lampronia atrella, one in the house, June 19.

Grammesia trilinea, one in the house, June 20.

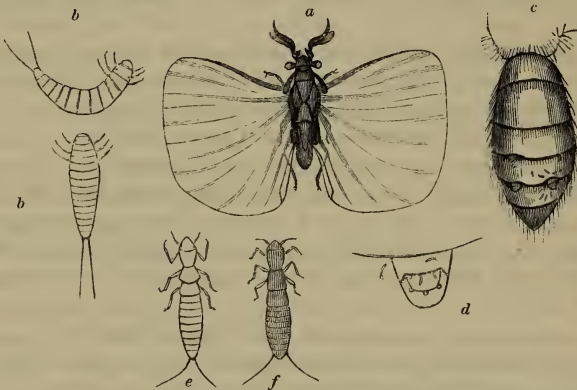
- Pseudotomia Jacquini*ana, one, grass, June 21, one, grass, June 29.
Heribeia Clerkella, one, hedge, June 21.
Semasia Wæberana, six, garden, June 21.
Argyromyges Cydoniella, one, garden, June 21.
Callisto guttea, one, cherry-leaf, June 22.
Argyrotoza Conwayana, one, hedge, June 25.
Semasia grossana, one, lilac, June 26.
Hadena Genistæ, one, palings, June 26.
Apheloseitia marginea, one, hedge, June 26.
Cnephasia Icteriana, three, grass, June 29, two, 30.
Cnephasia assinana, one, grass, June 29, one, 30.
Harpages cinctella, one, grass, June 30.
 — *G. H. Stainton*; *Lewisham*, July 18, 1845.
Capture of Lepidopterous Insects in Scotland in 1845.
Achatea Piniperda, one at Torwood, Stirlingshire, on an oak tree, March 29; one at Torwood, on sallow-blossoms, April 23, and one 26; one at Dunmore-moss, Stirlingshire, on a fir-tree, May 2.
Larentia multistrigaria, two, Torwood, flying, at 8, P.M., March 29; two, Boyd's Planting, Stirlingshire, April 6; one, Carron, Stirlingshire, hedges, April 25.
Calocampa exoleta, one, Boyd's Planting, at sugar, April 18.
Eupithecia abbreviata, two, Torwood, on sallow-blossoms, April 23.
Glæa rubricosa, one, Torwood, on sallow-blossoms, April 23.
Euthalia miata, one, Carron, hedges, April 25.
Euthalia impluviata, three, Carron, trunks of trees, May 8; two, ditto, hedges, flying, June 4.
Chaonia Roboris, one, Torwood, on oak tree, May 17.
Odontopera bidentata, two, Boyd's Planting, May 30; three, ditto, hedges, June 6.
Bupalus piniarius, four, Boyd's Planting, beaten out of fir-trees, June 6; five, Torwood, beaten out of bushes, June 12.
Macaria liturata, four, Boyd's Planting, beaten out of fir-trees, June 6.
Xylophasia combusta, one, Boyd's Planting, hedges, June 6.
Anchylopera Lyelliana, one, Airthrey, near Stirling, beaten out of a fir-tree, June 7.
Cochylis roseana, six, Airthrey, flying over heather, June 7.
Anchylopera fractifasciana, three, Airthrey, flying over heather, June 7; one, Latham-moss, heather, June 10; one, same place, June 11.
Hadena satura, one, Airthrey, hedge, flying, June 7.
Porrectaria ornatipennella, abundant on furze-bushes, June 7.
*Spilonota argyran*a, one, Carron, among grass, June 10; one, June 11.
Eupithecia pusillata, one, Carron, among grass, June 10.
Argyrolepia Bentleyana, two, Latham-moss, heather, June 10; four, same place, June 11.
Emmelesia albulata, in profusion, Carron, among grass, June 11.
Spilonota quadrana, two, Carron, among grass, June 11; two, same place, June 12.
Semasia perlepidana, one, Carron, among grass, June 11.
Lampronia amœnella, one, Carron, among grass, June 11.
Anarta Myrtilli, five, Latham-moss, heather, June 11.
Pterophorus calodactylus, one, Carron, among grass, June 12.
Lampronia Calthella, one, Carron, among grass, June 12.

- Harpalyce tristata*, two, Torwood, beat out of bushes, June 12.
Lophoderus subfascianus, four, Torwood, beat out of bushes, June 12.
Lampronia corticella, eleven, Torwood, beat out of bushes, June 12.
Lampronia Seppella, three, Torwood, beat out of bushes, June 12.
Chrysocoris angustipennella, ten, Torwood, beat out of bushes, June 12.
Orthotænia grammeana, two, Torwood, beat out of bushes, June 12.
Anchylopera derasana, three, Torwood, beat out of bushes, June 12.
Pseudotomia strobilella, one, Torwood, beat out of bushes, June 12.
Hepialus Hectus, three, Torwood, flying, June 12.
Hadena rectilinea, one, Torwood, at sugar, June 12. I believe this insect has not been captured since Mr. Marshall took it in Trafford Park.
Pyrausta cingulata, two, Arthur's Seat, among flowers, June 13.
Acronycta Rumicis, two, Latham-moss, June 13.
Rusina ferruginea, one, Latham-moss, June 13; one, Boyd's Planting, June 22.
Macrochila bicostella, three, Latham-moss, June 13.
Phycita abietella, two, Latham-moss, June 13; six, Latham-moss, June 25.
Mæsia favillacearia, one, Latham-moss, June 13; three, near Brodick, Isle of Arran, June 15.
Lasiocampa Rubi, one, female, Latham-moss, June 13; one, Latham-moss, June 18. These insects were flying very abundantly, but were very difficult to take.
Hepialus Velleda, nine, near Brodick, Isle of Arran, June 14.
Cidaria latentaria, one, near Brodick, Isle of Arran, June 14.
Argynnis Aglaia, one, near Brodick, Isle of Arran, June 15.
Lasiocampa Quercus, thirty, near Brodick, Isle of Arran, June 15. I can scarcely believe these to be either *L. Roboris* or *L. Quercus*, since the specimens are both larger and darker: they came out of the pupæ at the beginning of June, after remaining two years in the larva and pupa state, being fifteen months in the former and nine in the latter. •
Melanippe hastata, one, near Brodick, Isle of Arran, June 15.
Eupithecia strobilata, thirty-two, near Brodick, Isle of Arran, June 15.
Euthemonia russula, five, near Brodick, Isle of Arran, June 15.
Phytometra ænea, two, near Brodick, Isle of Arran, June 15.
Astyages obscurella, two, near Brodick, Isle of Arran, June 15.
Spilonota Pflugiana, four, near Brodick, Isle of Arran, June 15.
Acidalia fumata, one, near Brodick, Isle of Arran, June 15.
Hadena Cucubali, one, Carron, among flowers, June 17; two, Carron, on flowers, June 30.
Xylophasia combusta, one, Carron, among flowers, June 17; one, Carron, hedges, June 23.
Hipparchia Polydama, two, Latham-moss, 2, P.M., June 21; six, same place, June 25.
Thyatira Batis, one, Boyd's Planting, June 22.
Graphiphora C-nigrum, one, Carron, hedges, June 23.
Aspilates respersaria, three, Latham-moss, June 25.
Leiocampa Dictæa, one, Carron, on a willow-tree, June 27.

During the month of May, I took a great number of caterpillars on the blossoms of sallows and on the trunks of trees, and on the 10th and 11th of June, I found several caterpillars of *Dasycheira fascelina* on heather, the latter have since come out.—*Id.*

Midge observed at Sea. In the July number (Zool. 1010), which I have just received with the August number, I see that you have headed my notice of the midge "A Gnat observed two miles from land." Now a gnat it certainly was *not*; but a Thrips, or some allied genus, to which I believe the term midge is usually applied. A gnat might, I imagine, fly two miles without much difficulty. — *F. Holme*; *C. C. C., Oxford.*

Parasitism of Chalcidites. 2. *Pteromalus micans*, (*Olivier*). *Pt. bellus*, (*Ent. Mag.* iii. 466). This fly was first described by Olivier, in the 'Memoires de la Société d'Agriculture,' xvi. 477, pl. 3, fig. 12; and more recently, MM. Herpin and Guérin have published some interesting particulars concerning its economy. It is parasitic on *Chlorops Herpinii* (*Guérin*), which is also the prey of *Cælinus niger*, an Ichneumon fly. It is common in England and in Scotland, inhabiting corn-fields and grass-fields which are infested by species of *Chlorops*. The parts of the thorax and the podoon are more distinct than in most species of *Pteromalus*, and indicate an approach to *Seladerma* and *Lamprotatus*, which have a more developed structure than is possessed by the above-mentioned genus. — *Francis Walker.*



a. *Stylops Melittæ.* *b, b.* Larva of ditto. *c.* Abdomen of an *Andrena*, with three *Stylopes*. *d.* The ventral extremity of the female *Stylops*, showing the cleft at which the larvæ emerge.
e. *Pediculus Melittæ*, the larva of *Meloe*, found on *Nomada signata*; this species is always of a bright amber colour. *f.* *Pediculus Melittæ*, found on *Andrena tibialis*, of a brown or black colour.

Observations on Stylops. In a prior number of 'The Zoologist' (Zool. 949), I find some highly interesting observations by Dr. Siebold, on the economy of *Stylops*; and the present communication is merely to show how far my own observations confirm the interesting account there given. About the end of April last I searched for *Styloped* *Andrenidæ*, and succeeded in capturing two specimens of *A. Trimmerana*, in one of which there were three *Stylopes*, two in the third segment of the abdomen, of the usual flattened scale-like form, and one in the second, not so much protruded, but cylindrical in form; and from this cocoon I had a male *Stylops* developed the day after capturing the bee. I took great care of the bees, feeding them with sugar and water, and supplying them with fresh flowers frequently. At the end of a fortnight one of the bees died, without producing either a *Stylops* or its larva; but on examining the remaining living bee on the 18th day, I observed three exceedingly minute little creatures crawling amongst the hairs of the abdomen, and subsequently I observed them, in considerable numbers, making their escape from the transverse cleft observable upon the upper side of the protruded extremity of the body of the female

Stylops. On the morning of the following day, I found the bee dead, and its abdomen literally covered with the minute larvæ, which were still issuing from the orifice before mentioned. So numerous were they, that towards the extremity of the abdomen of the bee they formed a mass of living creatures; I have no doubt there were from two to three hundred of them. I endeavoured to procure the provisioned nests of some *Andrenidæ*, in order to follow up my observations, but did not succeed. Subsequently I have captured specimens of *A. tibialis* *Stylopsed*, and have bred the minute larvæ from them, but have not been able to proceed further at present. On reflecting afterwards upon the history given at the page referred to, I find the next step in the development to be, that these minute hexapodous larvæ are carried by the bee into its nest. Now, at this time there can be no larvæ in the bee's nest. Bees furnish their nests with the requisite supply of food first, and deposit the egg just before closing up the cell; this egg is not hatched for some days, I have generally found it to be from six to eight, therefore, the larvæ of the *Stylops* must either feed during that time on the pollen and honey, or exist without food until the grub of the bee is developed. I have not seen Dr. Siebold's paper, but I am told that he has not given a full and detailed account of the economy of *Stylops*; therefore, whether the whole account rests on actual observation or not, is uncertain: but it appears certain that the whole of the winged specimens of *Stylops* are males, and that the females never quit the body of the bees. I feel satisfied that Dr. Siebold's account, if not furnishing every minute particular, contains a correct general history of the economy of *Stylops*. — *Frederick Smith; High St., Newington Butts, July, 1845.*

Capture of Oiceoptoma near Lynn. Seeing that your interesting publication contains so much that is valuable concerning Entomology, I am induced to take the liberty of informing you that on the 16th of this month I captured, on the *Phallus impudicus*, two specimens of *Oiceoptoma thoracica*. — *E. E. Montford; East Winch, near Lynn, July 26, 1845.*

Capture of Bolbocerus mobilicornis near Bristol. As *Bolbocerus mobilicornis* has not, I believe, been taken for some time past, the following note on its capture may prove interesting. On the 27th of June, whilst sweeping late at night in a field of mowing grass, near this city, I brushed into my net one specimen, and on the 30th two more, all females. I never heard of more than one individual having been previously taken in this neighbourhood, and that on the opposite side of the city, fully three miles distant from the field in which I took my specimens. — *Fred. Viel. Jacques; 10, Redcliff Crescent, Bristol, July 17, 1845.*

Captures of Coleoptera in the North of England. Having in my search for *Peryphi* met with three of our four species of *Bembidium*, perhaps a notice of their localities may not be uninteresting to some of the readers of 'The Zoologist.'

Bembidium paludosum. I captured this species on the 21st of June last, in abundance, upon the banks of the river Derwent, near Gibside. It frequents such damp patches of sand as are close to the water's edge, and entirely destitute of herbage. They are amazingly quick, consequently are very difficult to secure.

Bembidium flavipes. I met with this pretty species on the banks of the Derwent, in April, as well as on those of the river Irthing, in Cumberland, on the 18th of June, although not plentifully in either locality. I have occasionally found this species at a much greater distance from the water than either of the others.

Bembidium pallipes. This lovely insect I found on the banks of the Irthing, at no great distance from the fine old abbey of Lannercost. This species I have never

found more than a few yards from the water, although never so close to that element as *B. paludosum*. It prefers such dry sandy places as are sparingly covered with grass. I found it rather abundant on the 15th of June, but on visiting the same locality on the 12th of July, I could only find one solitary individual.

Brosicus cephalotes. This species, so common on the sea-coast, I met with near Axwell Park, burrowed, as usual, six or eight inches deep in the firm sand by the Derwent side. This locality is some fourteen miles from the sea.

Serica brunnea. This exceedingly common coast insect has once or twice occurred at a considerable distance from the coast; a friend took a specimen at Gibside last season, and I captured three others in Cumberland on the 12th of this month.

—*Thos. Jno. Bold*; 42, *Bigg Market, Newcastle-on-Tyne, July 23, 1845.*

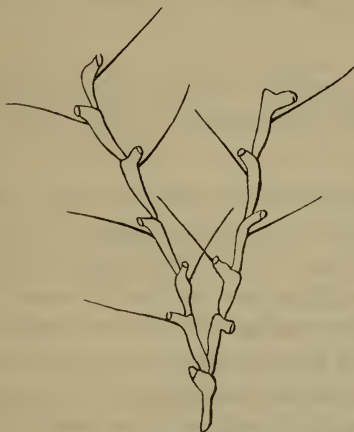
Capture of Coleopterous Insects in Leicestershire. About the middle of last June I spent a few days at Newtown-Linford, in order to collect insects frequenting Sheet-Hedges and other woods in that neighbourhood. I captured there, specimens of *Gymnaëtron Beccabungæ*, *Cionus Blattariæ*, *Orobitis cyaneus*, *Anoplus plantaris*, *Anthonomus incurvus* and *Ulmi*, *Erhynchus noeris*, *Otiorynchus ligneus* and *Attelabus Curculionides*. Under the oak-trees after a thunder-storm, three specimens of *Rhynchites pubescens*, *nanus*, *minutus* (*Herbst.*), *æneovirens*. On a gate-post, *Brachytarsus scabrosus*, and near the same locality last year, *Choragus Sheppardi*. Twice I took *Silpha 4-punctata*, flying. By sweeping the long grass, *Limonium serraticornis* and *Cryptohypnus 4-pustulatus*. *Prosternon holosericeus* beaten out of whitethorn. *Athois subfuscus* and *Campylis linearis* in the woods, male of the latter very abundant. *Telephorus lateralis*, *Ragonycha pilosa* and *Malachius fasciatus*. *Melasoma ænea* on the alder, in the low damp parts of the wood. I noticed the larvæ of *Chrysomela Hyperici* in abundance, feeding on *Hypericum perforatum*; *C. 10-punctata* very common upon the sallow. *Ischnomera cærulea*, one. *Donacia Sagittariæ*, on rushes in Bradgate-park. Early in June a friend and myself took about two hundred specimens of *Donacia Menyanthidis*, and also *Donacia nigra* in profusion. A young entomologist here captured *Donacia angustata* and *dentipes* at Misterton, near Lutterworth, making fourteen species of *Donacia* taken in Leicestershire.—*H. B. Kirby*; *Leicester*.

Habits of Epaphius Secalis &c. I have remarked before, in 'The Zoologist,' the occurrence of several species of beetles, generally obscurely known, in the sediment of the floods in our meadows. This spring, I have been much pleased in detecting some of them in their natural abodes; the *Epaphius Secalis*, for instance, I have found running about at the roots of rank grass and herbage in osier-holts, where I have no doubt it has its natural and permanent residence, in a fertile but contracted field of usefulness. Its habit is similar to that of the other subulipalate *Geodephaga*, as the *Bembidiides*, *Philocthus biguttatus* &c. In the same situation, too, I have found *Hypolithus riparius*, whose precise habit, although I had found it by hundreds in the floods, I had never before observed. It was in great abundance on the ground, especially around and on the stumps of the willows that supply the osier twigs, its habit is therefore like that of the true genus *Elater*, lignivorous. Many of the stumps whereon I found *Hypolithus* were reduced to a partial state of decay. These osier-holts, during the month of June, are very prolific both in herbage and insect life, and I have no doubt it is from these places that the profusion of beetles is swept down our river during floods. On the willows abound *Galeruca lineola* and *tenella*, and amongst the deep herbage, which is everywhere nearly up to the chin, are a vast number of *Coleoptera* not common anywhere else. *Eirrhinus schirrosus*, *Cyphon testaceus* and *margi-*

natus, *Leiophlæus nubilus*, *Hypera Rumicis*, &c., and in one situation, a very few of *Baris Artemisiæ*, *Blethisa multipunctata* by the banks of the water, and on the young reeds that fringe the "margent green" of these favourite nooks, prolific broods of the elegant and local *Donacia Menyanthidis*.—*H. W. Bates*; *Leicester*, July 16, 1845.

Remarks on a new Zoophyte belonging to the genus Crisia.

By R. Q. COUCH, Esq., M.R.C.S.L., &c. &c.*



Crisia setacea.



Crisia cornuta.

It is now about two years since, while examining the Zoophytes of the Cornish coast, that I met with two specimens of what I then thought might be varieties of the goat's horn coralline (*Crisia cornuta*). Being, however, doubtful on the point, I pointed out the probability of their being eventually found to be distinct, in the third part of the 'Cornish Fauna,' which contains the Zoophytes of the county. Since that time I have had the good fortune to find several other specimens in Mount's Bay; and I have also detected it among a few corallines sent to me by Mr. Ralfs, from Ilfracombe. Having thus had an opportunity of examining and comparing many specimens from the shores both of Devon and Cornwall, I am now enabled to point out what appear to constitute the specific characters of each.

Crisia cornuta. Calcareous, confervoid; cells uniserial, long and tubular with curved terminations *all turned in one direction*: a long bristle *above each cell*.

This is a very delicate and brittle Zoophyte; it is calcareous, con-

* Read before the Natural-History Society of Penzance.

fervoid, and varies in height to half an inch. It is composed of a single row of tubular cells, which are curved at their upper ends in such a manner that they all open in one direction; they are linked together in a single series, the termination of one being inserted into the angle of the other. The apertures are circular and even. *Above* the bent termination of each cell is a long slender calcareous bristle; this is hollow, but from its brittleness is not frequently to be found in preserved specimens.

The characters of the new species, which I propose to call *Crisia setacea*, are : —

Crisia setacea. Cells long, tubulous, with curved terminations turned *alternately in opposite* directions; a long bristle *below the aperture* of each cell.

This is also a calcareous and confervoid species, but is more slender and grows to a greater height than the last, though I have found them much alike in these particulars. It is sparingly and dichotomously branched. Compared with the last species it presents a well-marked contrast in having the bent necks of the cells turned in opposite directions, and the bristle is situated *below* instead of above the orifice. From the apertures of the cells being turned in opposite directions, the cells themselves might be said to be arranged in a biserial manner. This cannot however be considered as strictly the case, since they are inserted into each other at their terminations, and not by their sides.

Whether or not these two species have been included under the name *C. cornuta*, it is not easy to determine, but the specific characters of that species as given by Linnæus are not very definite when compared with those given by others. Linnæus, in Turton's edition, describes it as "denticles alternate;" so also does Stewart, who however probably copied Linnæus, while the modern species is described as having a single row of bent cells. From this it is probable that two species have been described under one name; and there can be no doubt that the one now described is distinct from the *C. cornuta* of Johnston and the 'Cornish Fauna,' and I here propose to separate them accordingly, trusting that the reasons assigned for so doing will satisfy all Zoophytologists.

R. Q. COUCH.

Chapel St., Penzance, July 21, 1841.

On the Dog, as the Companion of Man in his Geographical Distribution. By THOMAS HODGKIN, M.D.

Read before the Ethnological sub-section of the British Association.

As one of the sources of collateral information calculated to throw light on the diffusion of the human race over the surface of the globe, we may certainly reckon those animals which man has associated with him in a state of domesticity, either by design or accident. This may be made to include a very considerable range, from the elephant to the rat and the cockroach. Some species are, however, abundantly more important than others. The ox, the horse and the sheep would afford much natural-historical interest in connexion with the object alluded to; but there is no animal which will bear comparison with the dog. Not only has the *fida canina vis*, so often mentioned by Lucretius, been long appreciated by man, whether in the civilized or the savage state, but in the accommodating character of his constitution, which enables him to tolerate almost every climate, he is second only to man himself. It is also of great importance in the investigation of the dog in connexion with Ethnology, that climate and circumstance and intermixture of varieties produce modifications in form, size and other characters, which become the evidence, and even the records, of the vicissitudes which have attended the species in its association with man.

Buffon regarded the shepherd's dog as the parent stock whence our other known varieties have been derived. Whilst we have no proofs of this having been the case, and the dhooles, the pariah-dogs, dingos and other wild varieties, would make us inclined to adopt more than one original source for the domesticated animals, it is pretty evident, independently of these considerations, that the affinities and transformations of the reclaimed animal are not altogether in accordance with the scheme given by the great zoologist of France.

The dingo of Australia, and its varieties occurring in the islands of the Pacific Ocean, constitute so marked and distinct a group, that they may readily and at once be set aside, as not requiring to complicate the investigation. It may also be remarked, that in some respects they appear to be more closely allied to the fox than to the domestic dog. A female dingo, brought to this country some years ago, and kept in confinement in the country, proved a great attraction to the wild foxes in the neighbourhood, who overcame their natural shyness and caution to seek the company of the prisoner.

The most striking natural group, the most marked in its characters, and the most widely diffused of all the known varieties, is that which we may trace from China, over the northern portion of the old continent, to the islands of the Northern Ocean and the northern part of America. In this wide extent we find, as we should reasonably anticipate, some distinctly marked subdivisions, yet all so evidently maintaining the common type, that the least skilful observer must immediately recognize the family resemblance.

The dogs constituting this group may be thus enumerated : —

1. Those of China. 2. Those of Kamskatka, and others of the same stock employed in drawing sledges in the northern parts of Asiatic Russia. 3. The very distinctly marked variety of dogs occurring in the northern parts of Europe, and which are called *Spitz* in Germany, but which are known as Pomeranian dogs when introduced into France and England. 4. The dogs of Iceland, with which are probably connected those of Lapland and Greenland. And, lastly, those of the Eskimaux. A very remarkable family likeness is to be detected in all this group, of which perhaps the most striking features are the sharpened nose, rather small pointed ears, the approaching eyes but little projecting, the superior length of hair about the neck, with a greater or less tendency to shagginess on the other parts of the body, and, in most instances, an elevated curled tail, with a temper which may be characterized as restless and irritable. We meet with many varieties in stature, colour and length of hair. Thus it would appear that the dogs of China are often black, the epitelium of the mouth and tongue having the same colour. Those of the north of Europe are almost invariably white or light brown, whilst those of the Eskimaux are often black and white. From China we see specimens both of large and of small size, having the same characteristic form. Those of the Eskimaux and Kamskatkadales are of rather a large size, whilst those of Iceland are small, and probably lower in proportion than any other of the group. The dogs of this group appear to differ as widely in their degree of fidelity and docility. The Pomeranian variety, which is perhaps the most completely domesticated, is faithful and sagacious and makes an excellent guard, and the smaller specimens become the admired pets of the ladies. From an example which came to my knowledge, I am inclined to believe that the Chinese dogs have the same character. Those of the Eskimaux and Kamskatkadales are chiefly valuable on account of their strength and endurance of fatigue, but they are often ill-tempered and untractable, and though decidedly sagacious and capable of being trained as

retrievers, they are destructive, and cannot be left with safety in the way of live stock, bearing in this, as well as in some other particulars, a strong resemblance to the wolf, with which it is known that their blood is occasionally blended. It may, however, be observed, that independently of such known connexion, the whole group of which we are now speaking has something more of the wolfish expression than any other variety of the *Canis familiaris*.

I may here take occasion to make an observation which I believe to be by no means solely applicable to the case before us, but to hold good with many other parts of Zoology, namely, that there exists what may be termed a family likeness, which is very recognizable to the eye of the practised observer, but which it is very difficult to reduce to a verbal definition; and that on the other hand a description may be technically given, which fails to furnish distinctive characters, in consequence of either not being universally applicable, or of being occasionally found to be true of individuals of a different group. *A priori*, one would be led to infer that this must be the case with varieties of the same species, since the influence of similar external circumstances may produce the like effect upon several varieties, without their having a nearer affinity than that which exists between other varieties, which, from the absence of like influences, have not the same points of resemblance. Thus, an adequate supply of similar and congenial food, in a climate and situation equally adapted to the constitution of the animal, will be likely to produce increase of stature in varieties, which may be as distinct as community of species will permit; whilst the combination of influences of an opposite character, may produce a diminutive specimen of what is usually a large variety. Dog-fanciers have become practically acquainted with these influences, which they bring into operation at pleasure. Not only the dimensions of the whole body, but the relative proportion of particular parts is susceptible of similar modification. Thus the nose may be rendered proportionably short and diminutive in individuals of a variety generally presenting very opposite characters. Witness the small nose of those spaniels which are bred at Blenheim, and of King Charles's dogs, as contrasted with the same part of the common spaniel, in which it is highly developed as an organ of smell. An equally striking illustration is to be seen in the closely connected varieties, the bull-dog and the greyhound, of which I shall have hereafter to speak. I am induced to believe that the principle which I have stated, having been overlooked, has allowed the classification of varieties of dogs founded upon variable characters, which consequently clash with their real affinities.

Another extensive division of the species, and which appears to me to have been spread over a different portion of the globe, and probably to belong to the western part of Asia, the southern parts of Europe and north of Africa, may perhaps be regarded as comprising the true hunting-dogs. They possess, for the most part, well-developed noses; their ears are large, broad and pendulous; their proportions rather thick than otherwise; their jaws large, as compared with those of other dogs, and their tails thick. The descriptions of hounds left by Greek authors, seem to have been applied to dogs of this stock, which will also be recognized in the old English hound, and in all the varieties of the modern hound, down to the beagle. The pointer strikingly exhibits the same characters, and all the varieties of spaniel appear to be essentially branches of the same family, though probably modified by a cross, respecting which I shall presently hazard a conjecture. The true smooth terrier appears to be of the same division, though some passing under this name are probably mixed with another stock. In some of the dogs of this group we find probably the most marked effects of culture. Their large pendulous ears, as in some varieties of rabbits, may be referred to this cause. With a greater degree of submission and attention to man, they have also a greater degree of dependance upon him, and some almost resemble the sheep and the cow in this respect, whilst their more artificial faculties, which have been cultivated for many generations, have become innate in the offspring. Thus the pointer's puppy, of a few weeks old, begins to point of his own accord, and anticipates the first lessons of his trainer, just as Dr. Prichard has stated that young horses will frequently adopt the artificial paces which have been taught to their sires.

A third group is less distinctly marked as a whole, and I am not prepared to lay any great stress on the reasons which have induced me to bring some of its varieties together; but in others we have the strongest evidence of their affinity, both in visible characters and known connexion of blood, notwithstanding great apparent differences of figure. In this group I would place the greyhound, and that variety of shepherd's dog which most nearly approaches him in form. It would be quite a mistake to suppose that the shepherd's dog is a single variety, since different kinds of dogs are employed for this purpose in different districts. The transition from the greyhound to one of the shepherd's dogs takes place by almost insensible degrees, and Cooper's description of half lurcher and half cur, must be familiar and graphic to almost every one. In the young animals, when no mutilation of the tail has taken place, the resemblance is most

striking. Another variety, perhaps, is more nearly related to the greyhound than even any variety of shepherd's dog; I mean the English bull-dog. It was the perception of the striking resemblance in some points exhibited in these animals, notwithstanding their general difference of figure, before I was aware of the actual consanguinity which breeders are careful to maintain, which first led me to notice the indications of a natural grouping which would seem to clash with artificial arrangement. Though the bull-dog is short, compact and heavy, with a proverbially large, blunt head and broad face, and the greyhound is the very emblem of lightness, his elongated nose, head and neck resembling a snake, his back long, curved and flexible, his body, which, with sufficient room for the organs of circulation and respiration, affords almost none for those of digestion, and supported on long and slender limbs, which seems to render him among quadrupeds what the *hirondelle de mer* is among birds — there are individual points of resemblance between the two dogs which are perhaps more striking than any which can be found among other varieties. The feet and toes are remarkably delicately formed; the ears small and pointed, though generally inclined to be pendulous, capable of being erected; the tail remarkably slender, some of the stoutest bull-dogs having tails which would grace an Italian greyhound. Similar colours also prevail in both varieties, and more especially the brindled, the mottled, and the more or less white. In both, the sense of smell is slow for the dog, whilst the sight is good. Both are ferocious and savage when set on: the ferocity of the greyhound is not unfrequently shown in the destruction of sheep.

Many dogs, both of past and present times, appear to belong to the group we are now considering; and, though not so nearly related as the bull-dog and greyhound, hold an intermediate position with respect to lightness of form. The hunting dogs generally represented in sculpture are of this description; and certainly no variety of dog-species seems better adapted to adorn a group in a work of art, or to excel in the chase, when strength and activity are required by the character of the game, such as the wild boar, the wolf and the strongest stags. The Dane and the Dalmatian dogs seem to be the modern representations of these ancient animals, and the strong and beautiful kangaroo-dog, so highly prized by the Australian settlers, seems to be a very similar variety, obtained synthetically by the union of the greyhound and the bull-dog. The mastiffs of England and the Alps, and the *chien-dogue* of France, seem to belong to this group; but whether they are peculiarities, or merely the result of the careful cultivation of

a large variety, or are referrible to admixtures with varieties of a different group, such as the largest old hounds, — I am unable to determine; but there are some points in form and temper which would favour the latter idea.

If I have succeeded in making myself intelligible, with respect to the three principal groups which I have proposed, I may now proceed to offer a few remarks respecting their combinations. This part of the subject seems to present some considerations, which are interesting as connected with practical Physiology and with Ethnology. I have no intention to attempt the analysis of the endless forms of mongrel to be seen amongst the domestic dogs in a city like London. They offer the analogues of the human inhabitants, in the distant elements which are brought together to compose the motley group. No satisfactory conclusions are to be drawn from such uncertain data. The means employed and the results obtained by dog-fanciers, are curious in a physiological point of view, and would doubtless deserve attention, as capable of furnishing hints of practical value in the cultivation of other species of animals; and in this respect they may be placed with those of the florist and horticulturist. The subject has only to a very limited extent fallen under my observation. I shall therefore proceed to notice one endemic variety, which bears the name of the country from which it has been imported, I mean the Newfoundland dog, which, from his majestic size and comely appearance, and perhaps still more on account of his excellent qualities, which have often rendered him the friend and the preserver of man, has been probably more celebrated by the pen and the pencil, than any other animal of the brute creation, the horse alone excepted.

The Newfoundland dog has been regarded as a large species of the water-spaniel, but I am inclined to attribute to him a widely different consanguinity, although the results of the same principle of admixture are to be found in both. The Newfoundland dog of the largest kind — for the Newfoundland dogs imported from the island are not all of the same description — appears to be the produce of an admixture of the Eskimaux dog with a large variety of mastiff, in France called *chien-dogue*. Their vast size, a peculiar deficiency about the loins, which often gives a characteristic and awkward peculiarity to the gait, and above all, an expression of countenance which often indicates their descent, are physical traits which they derive from the dogue. The subdued and quiet manner which they exhibit, is derived, without doubt, from the same source; whilst their length of hair and their

peculiar manner of carrying the tail, may be pretty confidently traced to the Eskimaux dog. Their extraordinary quickness and intelligence may be referred to the same origin, of which a single example may give an idea. Newfoundland dogs have both shown their quickness of perception and their powers, by their readiness in opening doors, and even in turning the handles of locks. A young Eskimaux dog, of the purest breed, brought to this country at the request of my friend Dr. R. King, had left the ship to be introduced to the economy of a house but a very short time before he perfectly understood the use of the handles of the lock. Like the Eskimaux dog, the Newfoundland dog becomes a very good retriever.

In an historical point of view, nothing is more reconcileable than this supposed origin of the Newfoundland dog. The native dog of the country would almost necessarily be of the Eskimaux stock, in accordance with the geographical distribution of that group, which I mentioned at the commencement of this paper. We have completely exterminated the original inhabitants of the Newfoundland, and so complete has been the destruction, that it is now very difficult to obtain any traces of them, and it has become an ethnological problem, to what division of the human race they belonged. By some, they have been supposed to be a branch of Indians from the neighbouring part of the continent. In opposition to this, it has been ably contended that they were Eskimaux. The remains which are left of their arts, and what we know of their habits, strengthen this assumption. If it can now be shown that Newfoundland dogs are to be traced to the dog of the Eskimaux as one of their ancestors, a fresh argument will be furnished in favour of the last stated conjecture as to the human inhabitants. The early intercourse which subsisted between France and the northern parts of America, readily accounts for the peculiar character of the European portion of the Newfoundland dogs' descent. We are not, however, to suppose that in every instance a similar admixture of race will produce the same character of offspring, and still less that the mixed race will become an equally permanent variety. This remark, in both particulars, seems to be borne out by the dogs of Newfoundland.

This analysis of the Newfoundland breed, if correct, seems to afford a clew to some of the varieties of European dogs. The long hair and some similarity of form observed between the water-spaniel and the Newfoundland dog, though not to be admitted as indicating any close affinity between the two, seems very fairly to point to the dogs of the north of Europe of the first group which I have mentioned, as having

contributed to the production of this variety, and the physical characters of the spaniels, as well as their dispositions, are indicative of an admixture of the *Spitz* with some of the varieties of hunting-dogs. The prevalence of the *Spitz* in Europe would readily account for such a combination. This, however, suggests another remark, bearing on the ethnological part of the subject. The possession in common of a particular variety of dog, whether in its pure or mixed character, whilst it becomes a strong evidence that the nations of men with whom they are found, must have had some communication direct or indirect with each other, can afford no indication of the fusion of the two human varieties, or even of the extent of intercourse which has existed, since this must depend upon circumstances, favourable or unfavourable, which have influenced the production and diffusion of the domesticated animal. Thus, we may find Eskimaux dogs in London, where we never see an Eskimaux; and it will be possible for the traces of these animals, as seen in their descendants, to remain as tokens of our intercourse with the Eskimaux, if that race of men should become extinct, and our commerce with that part of the globe should come to an end. But should a permanent and highly valuable variety be the produce of an admixture with these dogs, an extension would be given to them altogether disproportioned to the intercourse which has subsisted between the English and the Eskimaux.

A remarkable and highly prized endemic variety of dog is found in the Western Islands of Scotland, and it is commonly called the Skye terrier. On the same principle on which I would account for the production of the gigantic Newfoundland dog, I would refer the Skye terrier to the union of a diminutive variety of terrier with the Icelandic dog, which I have noticed as a small and low specimen of the dogs of the first-mentioned division. In this light, the Skye terriers may preserve the traces of some immemorial relations between the western Hebrides and some more northern island of the ocean, since the communication may have been with Iceland itself, or more indirectly.

I offer these remarks upon the dog, chiefly as an example of the mode in which the study of the races of domestic animals may be made subservient to the study of Ethnology. Besides the direct help to be derived from evidence of a particular kind of the migrations and communications of man, another advantage is offered, which deserves to be mentioned. In this investigation we clash with no scruples which, in the breasts of some persons, militate against similar investigations regarding the human race, from an idea that the Records of Scripture may be called in question. I have elsewhere expressed my

opinion that this fear is without foundation. We have not only the absence of this scruple in the case of inferior animals, but we have the opportunity of interrogating Nature by the means of experiments, and by analogy we may transfer some of the conclusions obtained to the human species.

I am persuaded that much more might be done with the dog than I need anticipate. That analogous researches may be made with respect to the horse, cannot be doubted. I suggested the importance of noticing the domestic animals, to my friend D'Abadie, on the occasion of his first visit to Abyssinia; and on his return, he informed me that he had had occasion to remark the possession of a very particular variety of horse in connexion with the diffusion of related tribes of men. Whatever may be the value and results of enquiries like these, as respects the study of Ethnology, the labour need not be in vain as respects the animals themselves, since conclusions of more or less practical value can scarcely fail to be deduced for the guidance of the breeder and the benefit of the public.

I should observe that not merely the dingo of Australia, but the dogs of Mexico and some other parts of the New World, have been purposely left out of the question in this sketch, as they would merely produce an inconvenient complication. They merit, however, a careful examination, not only in connexion with the history of the genus *Canis*, but in relation to the varieties of man by which they have been more or less domesticated and diffused in particular regions.

THOS. HODGKIN.

Anecdote of Leverets suckled by a Bitch. The mowers, in cutting the grass, found three leverets, a few days old, which a bitch suckled on their being placed with her in an old dilapidated shed. She took as much care of them as of her puppies for a few days, when they disappeared one by one each night. The old hare having been watched about the place, is supposed to have enticed the leverets between the rough planks of which the shed is constructed and in which the bitch was fastened.—*John Fremlyn Streatfeild; Chart's Edge, Westerham, July 9, 1845.*

Singular act performed by a Cow. The singular act performed by a sheep, mentioned by Mr. Lewis (*Zool.* 1048), tempts me to record a somewhat similar occurrence observed by myself just a year since, at Finborough, in this county; but in my case the "performer" was a *cow*, one of a large and beautiful dairy of short-horns, and apparently in perfect health. We were struck by observing her, one evening, in front of the parlour windows, for a considerable time, with head uplifted, exactly as Mr. Lewis says, "alternately protruding and drawing in," and at length dropping, what we all fancied was her tongue, but which, upon examination, proved to be part of a huge beef-bone. And every evening, for, I should think, a fortnight, did this same cow, in front of the same window, with infinite pains, select and mouth some large bone. No other cow did it, nor has this one done it since. — *Frederick Barlow; Burgh, Suffolk, August 19, 1845.*

A Catalogue of Birds observed in South-eastern Durham, and in North-western Cleveland. By JOHN HOGG, Esq., M.A., F.R.S., F.L.S., &c.

(Continued from page 1063)

Starling or Stare, *Sturnus vulgaris*. In the winter it resorts to marshy and low grounds, in large flocks, for the purpose of procuring worms and water-insects. It makes rather a pleasing whistle. The flesh on the breast alone is said to be eatable. Col. Hawker adds, "Starlings are very good when stewed with rice, or made into a curry."

Red-legged Crow, Chough, *Fregilus Graculus*. Mr. J. Grey informs me that "stragglers are occasionally killed along the Durham coast." As the chough breeds in the sea-cliffs near St. Abb's Head, about twelve miles to the north of Berwick-upon-Tweed, it is likely that those have been birds on their passage to or from that locality.

Raven, *Corvus Corax*. A rare species in nearly all this district. However, it is known to breed in the rocks at Huntcliff in Cleveland.

Carrion Crow, *Corvus Corone*.

Hooded Crow, Royston Crow, *Corvus Cornix*. Here sometimes named the Norway crow. A migratory bird, arriving in the marshes on the coast, and by the Tees, about the commencement of October. It is a quiet and shy species. Since it is "stationary in Scotland," according to Dr. Fleming, I conclude that the majority of our visitors will pass over the German Ocean, and come to us from Norway and Denmark.

Rook, Seed-eating Crow, *Corvus frugilegus*. Not only a *country*, but also a *city* bird; for it forms its colony both near the habitations of men in the former, and likewise in towns and cities. Even in some streets in London, it makes its nest, regardless of all noise and bustle. A rookery is an object of the greatest amusement and interest; and indeed it presents to every one a true picture of activity and industry, and as such one well worthy of imitation.

Jackdaw, *Corvus Monedula*.

Magpie, Pianet, *Pica caudata*. In the winter, this bird, when frequenting woods, becomes somewhat gregarious. I have then occasionally noticed fifteen or twenty together. It is most destructive to the eggs of game, and to very young birds.

Jay, *Garrulus glandarius*. No less famous for its beauty than for its abominably screaming noise. Common in our woods, and delights in acorns. In the autumn of 1836, I was desirous of saving some acorns from a large tree of the hairy-cupped Turkey oak, grow-

ing in my garden, for a friend, but I was prevented by a brood of jays devouring all the acorns before they were ripe, — at least before any fell to the ground.

Great Black Woodpecker, *Picus Martius*. Mr. Hewitson, in his 'Eggs of British Birds' (part 13, p. 193), mentions Mr. T. Meynell, of York, says that he well remembers having seen a pair in the grounds of the Friarage at Yarm. This bird is not included in Mr. Selby's Catalogue.

Green Woodpecker, *Picus viridis*. Not unfrequent in some of our woods. When we consider the vast destruction many insects make to our noblest forest trees, we ought to protect the Picidæ as much as possible; for it is by these birds, which live on those insects, that we can best hope to prevent their destruction and almost certain decay. The tongue of the woodpeckers deserves especial examination from its structure and mechanism.

Great Spotted Woodpecker, *Picus major*. This species is inserted in Graves's 'Birds of Cleveland:' but I have never seen a specimen from this vicinity. In Northumberland, Mr. Selby is induced to consider it as a bird of passage.

Lesser Spotted Woodpecker, *Picus minor*. "One was shot some years since, near Stockton Bridge."—*J. G.*

Wryneck, *Yunx torquilla*. Migrates to us early in the spring, and is not uncommon in this district. Mr. Selby, however, informs us that he has not traced it further north than the Wansbeck, in Northumberland; although Mr. Yarrell states (vol. ii. p. 156) that it has been killed three or four times in Scotland. The plumage is remarkable for the great variety and beauty of its pencilling and spots. The occipital feathers of the male nearly approach to a crest. The conformation of the tongue and its muscles is truly wonderful. Linnæus says very correctly "*collem contorquens circumspicit*," from which circumstance, indeed, it takes its English name. I have often noticed it on hedge-banks, seeking for ants; once, Sept. 15, 1829, in particular, I observed a fine bird picking insects out of a fungus on the edge of a ditch. I have, in my former Catalogue, p. 9, No. 70, retained the more correct form of writing the name *Jynx*; the Greek word is *ἰνυξ*,—expressive of its sharp and harsh cry, resembling a repetition of *Jynx, Jynx, Jynx*, which is derived from the verb *ἰνυω*, *clamo*. Linnæus at first used *Jynx* in his 'Fauna Suecica,' 97; but afterwards adopted the less correct word *Yunx* in his 'Systema Naturæ,' vol. i. p. 172 (edit. 1766), which appears to have been followed by all subsequent writers.

Nuthatch, *Sitta Europæa*. The bill of this genus greatly approaches that of the Picidæ, and is very powerful; with it the bird makes a peculiar and loud tapping noise, that may be heard at some distance. It is beautifully coloured in plumage, and much resembles the creeper in its anisodactyle feet and claws, but the last are not so long. For many years I have observed it in the woods near the city of Durham, but I believe the county of Durham forms its northern limit in Britain.

Cuckoo, *Cuculus canorus*. In most languages this bird has received its appellation from its dissyllabic note; thus its Greek name was *κόκκυξ*, so called because of its cry of *κόκκυ*. But Bewick has added to it the provincial name of *Gowk*, which is evidently the same as the Norwegian *Gouk*. In Swedish it is likewise called *Gjok*. I have only once been so fortunate as to find a nestling cuckoo, which is recorded in my Catalogue, p. 9, No. 71. In its flight it is not unlike a hawk, from which circumstance, most probably has arisen the vulgar error that “young cuckoos change to hawks in the winter.” It is harmless, and chiefly insectivorous.

Common Wren, *Troglodytes Europæus*. In the winter the wren becomes familiar, and quite domestic: frequenting cow-houses and farm buildings. It is most obedient to the divine command of “multiply in the earth,” for it annually brings up two numerous broods. Besides being common to all parts of Europe, it is found in Asia Minor.

Creeper, *Certhia familiaris*. This bird differs from the Picidæ and Cuculidæ in having three toes before and only one behind, but in order to accommodate that arrangement of them to creeping and climbing up the stems and trunks of trees, with an equal degree of ease, Nature has given to it very long, curved, and sharp claws. Its bill also is hooked, slender and falciform. It is prettily mottled with brown, a little like the wryneck, but less darkly coloured. Its note is simple and weak.

Hoopoe, *Upupa Epops*. “Several have been shot in this neighbourhood: the last in Coatham marsh.”—*J. G.* I have noticed it as being common in the spring in Sicily: its manners struck me as chiefly terrestrial, *i. e.*, preferring to seek for insects on the ground: something in habits between the magpie and thrush. When disturbed by our mules approaching to it, it flew only a little way and then settled again on the ground. Ovid’s description of this bird is correct:

—————“cui stant in vertice cristæ,

Prominet immodicum pro longa cuspidè rostrum,

Nomen *Epops* volucris.”—————

The geographical range of the hoopoe is related by ornithologists to extend from India even to Scandinavia.

Kingfisher, *Alcedo Ispida*. Breeds and remains with us the whole year. It is remarkable for the extreme velocity with which it flies, and generally follows the course of the river. It is rarely seen in company. However, I have once, Dec. 28th, 1829, observed four or five of these birds flying about together, and sitting on the trees that hung over a rivulet near here. They were making shrill and loud chirping screams, while two of them were either fighting or playing. The large size of the bill and head, gives this exquisitely painted creature a most awkward appearance: it seems, in fact, as if it were top-heavy.

Swallow, *Hirundo rustica*. The migration of birds has been noticed by the earliest writers. We find, indeed, an allusion made thereto by the inspired author of the book of Job—the most ancient human composition now extant in the world. The passage I refer to is the 26th verse of the 39th chapter, where the migration of the hawk is clearly meant. But the prophet Jeremiah has most distinctly said (that some other birds) “and the swallow observe the time of their coming,” (see v. 7, c. viii). With the ancient Greeks, also, the swallow was held to migrate, and the wind which used to blow from the south or south-west, at the usual time in the spring, was by them called Chelidonias, from χελιδών, a swallow, because with it, that bird used to arrive. Then they celebrated their spring festival, and always esteemed that bird as sacred. So now, the modern Greeks account the swallow as a favourite, and protect it with a superstitious love. For an interesting anecdote of a swallow, refer to Clarke’s ‘Travels in Greece,’ vol. viii. p. 126, 8vo. edit. Both the Romans and the Greeks supposed Africa to be the place of hibernation of the swallow. And indeed, the former people were most likely to have ascertained that interesting fact from actual observation, as they had many colonies in Africa; and being there at all seasons of the year, they had every opportunity of confirming their knowledge on this subject. For a few lines in answer to a query on the “Migration and breeding of Swallows,” by me (signed J. H. N., March 5, 1830) see Loudon’s ‘Mag. Nat. Hist.’ p. 474, vol. iii. And with regard to the Hirundinidæ, I will add nothing farther here, as the question of their migration is now satisfactorily determined.

Martin, *Hirundo urbica*.

Sand Martin, *Hirundo riparia*. Common in certain spots, such as sandy or earthy banks, near rivers, or the sea-coast, where it builds:

and either one of the parent birds, or one of its numerous young which has been bred there, returns to the same locality for many successive years.

Common Swift, *Cypselus Apus*. This bird is called by us swift, —*par excellence*—of its great strength and surprising rapidity of flight, in truth, it may be said to live on the wing. It is hereabouts much less abundant than the other Hirundinidæ. Its congener, the alpine swift (*Cypselus alpinus*), has been of late years observed in England, although it has never yet been known to reach this north latitude. I am perfectly acquainted with it, as having seen it in great numbers among the alpine districts of Europe, especially of Switzerland, and the rocky shores of the Adriatic and of the Mediterranean. In its flight, it is even stronger and more vigorous than the common swift: it utters a similar scream when flying after and chasing its companions; and in its other habits it extremely resembles that bird. Its pure white belly well marks it, while on the wing. The viscid saliva of the swifts, as also of the goatsuckers, enables them to hold in their mouths the insects caught whilst flying. The foot of the swift is singular, having all four toes placed before, with the claws thick and strong.

Nightjar, or Goatsucker, *Caprimulgus Europæus*. Not very unfrequent in the solitary and woody places in this vicinity, where it nidificates in the summer. Pennant was mistaken in his statement, that this migratory bird “disappears in the northern parts of our island the latter end of August” (p. 567, vol. i. edit. 1812), for it continues with us till October. When its mouth is wide open it appears exceedingly ugly. The size of its gape has much similitude to that of the bats, whilst the strong bristles placed on the sides of the upper mandible are likewise rather analogous to the teeth of those animals; and they assist, like them, in securing its prey. It is worth noticing, that the largeness of the mouth in the goatsuckers and bats, is peculiarly necessary in seizing insects on the wing, during the dusk of the evening, and is an admirable adaptation of structure to its use. So also, the large ears in these birds correspond with those of the bats and owls. Hence, the acute sense of hearing in all these nocturnal or crepuscular animals, is most probably a mean of directing them to their prey, and of guiding them in their flight. From a supposed likeness to the swallow, some authors have changed its generic name to Nyctichelidon, night-swallow; but which I hold to be needless. The foot of the goatsucker resembles that of the swallow, only with its thumb, or hind-toe reversible, or brought to the side. Also the

serratures on the under edge of the central claw are extraordinary ; although their true use appears not to have been correctly ascertained.

Ringdove, Cushat, *Columba Palumbus*. Abundant in our woods. Builds early in the spring and in the middle of the summer. Its nest is so badly constructed with a few loose sticks placed across each other, that the two white eggs are generally visible from under the tree. This pigeon is excellent eating in the autumn, when it has picked up grain from the stubbles : but in the winter, when it has fed on turnip-tops and other greens, it is very strong and rank. And in the latter season it becomes gregarious.

Rock Dove, *Columba Livia*. The figure of the wild pigeon in Bewicks' 'British Birds,' vol. i. p. 267, edit. 1797, is this species, which Mr. J. Grey tells me is found in Huntcliff and Rockcliff, on the Cleveland coast. It is the original of our domestic or dove-cot pigeon. The great fondness of the tame sorts for salt, and their not settling or roosting in trees, will tend among other proofs which might be named, to confirm that fact. The mode of drinking of pigeons is singular ; it is not like that of other birds, by sipping, but by continual draughts, like quadrupeds. So it is related by Pennant, to whom, I believe, it was first made known by that amiable observer, White of Selborne. Who, having seen that ancient mosaic, considered by many as the work of Sosos, and the same which Pliny has praised ('Nat. Hist.' lib. 36, cap. 60), representing pigeons drinking from a vase, still preserved among the treasures of antiquity at Rome, does not remember its exquisite beauty and faithful representation of Nature ? Most of the doves, and particularly the present kind, make a loud noise in flying, more especially in first rising on their flight ; this is caused by their striking their wings together across their backs, which creates a noise much resembling a clapping of the hands. See a short notice on this subject, in illustration of Virgil's beautiful simile of the rock dove, by myself, in the 'Gentleman's Magazine,' vol. vii. (for June, 1837), p. 592. Their dung, or guano, is highly esteemed for manure. Much of it is annually collected from the cliffs near Scarborough, and sold to the neighbouring farmers for that purpose.

Turtle Dove, *Columba Turtur*. Hereabouts this quiet and elegant bird of passage, the emblem of peace, of love and gentleness, is very rare. I possess a specimen of a young female, which I shot near Norton, Sept. 14, 1829. It has not the usual spots of black and white feathers on the sides of the neck, and much resembles the lower figure in Yarrell's engraving at p. 267, vol. ii. A friend also shot one in the same district, about twenty-six years before ; but that bird,

being an adult, *had* the black marks on the neck, as represented in the upper figure of that engraving, and in Bewick's figure, p. 272, vol. i. edit. 1797. It flies, on being disturbed, only to a short distance, from one tree to another not far off. I have seen it somewhat plentiful in the summer, in Worcestershire. Its cooing is both melancholy and plaintive.

Common Pheasant, *Phasianus Colchicus*. Although here a hardy and perfectly naturalized species, and capable of enduring the cold, damp and changeable climate even of North Britain, yet it does not exist in any part of Scandinavia; the cold in winter there being too severe for it. The cocks are extremely fierce, and fight with each other like domestic cocks. The pheasant crosses readily with its congeners, as well as with the Tetraonidæ, and the domestic hen.

Black Grouse, *Tetrao Tetrix*. "Some were turned out at Kildale, to the east of Stokesley, a few years since, by the late R. Livesey, Esq., and they are now found in the woods round Guisborough."—*J. G.* According to Professor Nilsson, the black cock has a sharp sight, and his sense of hearing is more acute than that of other birds. In the beginning of autumn this species lives chiefly in moors, morasses, &c. in Scandinavia, but in the winter in coverts; it then packs and becomes extremely wild. It is, however, easily domesticated; and it has been known to breed with the barn-door fowl. The habits of the black cock much resemble those of the more noble cock of the wood (*Tetrao Urogallus*, Lin.), usually known by the name of Capercali, once indigenous in the highlands of Scotland.

Red Grouse, Moor Game, *Lagopus Scoticus*. Common on the moors above Stokesley and Guisborough. Mr. Selby says (Cat. p. 270, No. 116), "Grey and white varieties have been killed, particularly at Blanchland, in the county of Durham." It may be worthy of notice, that the male birds are generally, among the Phasianidæ, Tetraonidæ, &c., larger and heavier than the female or hens, whilst among the Vulturidæ, Falconidæ, &c., the females exceed the males in size. For what cause may Nature have thus arranged these alternating differences in size and weight? This note, together with "A List of Land Birds observed in the county of Durham," comprising a great portion of my observations included in the present paper, I communicated to my friend Mr. Yarrell, in April, 1837, and I am very glad to find that, although that distinguished naturalist did not adopt my specific term, he has coincided with me in thinking, that "this handsome species ought to have been named *Britannicus* rather than *Scoticus*." (See 'Brit. Birds,' vol. ii. p. 316).

(To be continued).

A List of the Migratory Birds of Provence, with Observations on the Dates of their Migration. By M. J. DUVAL-JOUVE, Professor of Philosophy in the College of Grasse.

It is probably a task of greater difficulty in Provence than in any other part of Europe, to observe with precision the dates of the arrival and departure of birds of passage. This difficulty I conceive to be in a great degree attributable to the geographical position and character of the country. The interior is occupied by mountain ranges, some of which are so lofty as to retain the snow on their northern acclivities throughout the entire summer. The plains stretching towards the sea are low, and consequently enjoy a much higher temperature, so that on the approach of summer it is still cold on the mountains, even when it has become very hot in the plains. Cold and wind have great influence in retarding or accelerating migration: and it often happens that those species which are descending towards our coast, either from our own mountains, or the more northern provinces of France, arrest their flight and stay for a longer or shorter time on the hills of moderate height. In many instances food has a direct influence on migration: for instance, at Castellane, which is about thirty-six miles from Grasse, there is not a single thrush to be seen throughout the summer; but at the end of September, when the juniper-berries are ripe, the thrushes arrive in immense flocks, and remain there about six weeks, or till the middle of October, when they descend to the level lands, which are thickly planted with olive-trees, whose fruit is then ripe, and among these they remain until the olive-harvest is over and the trees completely stripped.

The autumnal migration extends over a considerable time. The first heavy rains seem to arouse the migratory impulse, and to bring the earliest travellers towards our shores, but it requires a greater degree of cold to cause the main migration. Often after we have experienced severe cold, the weather again becomes mild, and the movement then seems suspended for a while, indeed, until wintry weather again sets in, and compels the travellers to resume their journey. I have observed that sometimes when the early autumnal rains have fallen in sufficient quantity thoroughly to cool the earth and atmosphere, and when a light wind has blown from the north-west, the birds of passage have arrived in immense flocks, and the sportsmen have made great havoc among them: but this is not the case when the north-west winds have not been preceded by rain. When the autumnal rains are late, this general early movement does not take place,

and although the emigrants make their appearance amongst us, it is only in small flocks, and there is little indication of a general impulse; the flocks are not only smaller, but succeed each other much less frequently, and sometimes they even alter their course, and take another route. Pigeons, starlings, and many other birds which habitually fly directly against the wind, or nearly so, instead of going towards the west, shape their course in an opposite direction; and often when the weather is perfectly serene, they mount to a great height in the atmosphere, escaping at the same time the observant eye of the naturalist and the destructive gun of the fowler. The vernal migration is subject to similar variations: at this season the rains tend greatly to diminish the cold, and consequently exercise considerable influence in hastening or retarding the movement, according as they happen to be early or late. In the month of March, the birds crowd the shores of Africa when the wind happens to be cold and westerly, waiting for the east wind, with its accompanying rain and warm weather.

There are many birds inhabiting the northern and midland countries of Europe, which appear in Provence occasionally but not annually; their visits seem to be occasioned by extreme cold or the scarcity of suitable food in their usual haunts: these I have separated from the rest under the name of *irregular birds of passage*. The remainder are seen every year, and may therefore be termed *regular birds of passage*. The periods of migration will be found sufficiently exact, except as relates to that period of the year immediately succeeding the middle of March, when shooting being strictly prohibited throughout France, our sportsmen feel little interest in observing the movements of the feathered tribes.

I. IRREGULAR BIRDS OF PASSAGE.

Osprey, *Pandion haliaëtus*. Aigle Bal-buzard, (*Temm.*) Appears irregularly, towards the end of autumn or in winter.

Hen-harrier, *Circus cyaneus*. Appears at the same seasons as the preceding, but less frequently.

Marsh Harrier, *Circus æruginosus*. Busard de Marais, (*Temm.*) This species is seen more frequently and more regularly than the two preceding, during the whole of the winter, and remains near the marshes and stagnant waters. When it happens that a water-bird is wounded by a sportsman, and still retains sufficient power to swim or to rise from the ground, this harrier, which is always hovering near, waits a few moments, then flies towards the wounded bird and carries it off. If this occur near a sportsman, he fires at the harrier, and the report of the gun is sufficient to frighten it away.

Red-footed falcon, *Falco rufipes*. *Falco vespertinus*, (*Gmel.*) Faucon à pieds rouges, (*Temm.*) Appears but rarely. In November, 1821, many were killed in Provence, according to M. Pellicot; in 1839, a few were observed.

Jackdaw, *Corvus Monedula*. Le Choucas, (*Temm.*) It occasionally descends to the shore, but only during severe cold. It is very common in our subalpine mountains during winter.

Chough, *Corvus graculus*. Pyrrhocorax Coracias, (*Temm.*) Same observation as the former.

Roller, *Coracias garrula*. Rollier vulgaire, (*Temm.*) Arrives generally in April and departs in October. It is always solitary, and conceals itself in the woods.

Rose-coloured Pastor, *Pastor roseus*. Martin roselin, (*Temm.*) This beautiful bird is sometimes seen in Provence. In the autumn of 1817 many were observed; in 1837, at the end of May and June, some were seen, and always in flocks: they sought the large trees on the banks of the brooks, were fond of cherries, and might be easily approached. (See 'Report of the Society of Science in the department of Var.')

Common Crossbill, *Loxia curvirostra*. Bec croisé commun, (*Temm.*) In Provençal, Bé touar. This bird is one of the first that arrives here from the north. It is at the end of June and the beginning of July that the migration takes place. They are not seen every year, and a very long time often elapses between their visits. There is a belief among the people which it is difficult to explain, but which seems to arise from the much-favoured septennial period, that this bird only appears every seven years: this is an error; for, to my knowledge they appeared abundantly in 1831, again in 1834, some few in 1837, and in great numbers in 1842. Since that time I have not seen any, but have no reason for believing that none have been seen. I do not think these birds pass the Mediterranean; they remain too long in Provence to justify such a conclusion. We meet with them in the summer, sometimes even in the autumn, and they disappear in the winter and spring to nestle I know not where. They sojourn in our large pine-forests.

Bullfinch, *Loxia Pyrrhula*. Bouvreuil commun, (*Temm.*) Rarely seen near the coast; common in winter on the heights and in the middle of Provence.

Pine Grosbeak, *Loxia enucleator*. Bouvreuil dur-bec, (*Temm.*) More rare than the preceding; it was killed in numbers at Frejus during the winter of 1836.

Mountain Finch, *Fringilla montifringilla*. Le Pinson de montagne, (*Cuvier*). Appears in March and is here in November and December, almost regularly.

Fringilla citrinella. Le Venturon de Provence, (*Buffon*). Gros bec venturon, (*Temm.*) This species only migrates into Provence with the extreme cold: it leaves us with the spring. The belief of the septennial passage extends to this bird as well as to the crossbill.

Siskin, *Fringilla spinus*. Le tarin, (*Temm.*) Migrates in autumn. M. Roux, in his 'Ornithologie Provençale,' asserts that the passage of the siskin is annual, but sportsmen have always assured me to the contrary.

Lesser Redpoll, *Fringilla linaria*. Le Sizerin, (*Temm.*) Generally arrives and departs with the very cold weather.

Great Bustard, *Otis tarda*. Outarde barbue, (*Temm.*) In the middle of the province this species is seen every year; it does not frequent the shores except in very cold weather.

Sanderling, *Charadrius calidris*. Sanderling variable, (*Temm.*) A few arrive in very cold weather in January.

The Flamingo, *Phænicopterus antiquorum*. Le Flammant. Appears every winter in large flocks. In the delta of the Rhone, or Isle of Camarques, they are seen in the spring and even in the summer, but at uncertain periods. They are always observed after great rains and floods: and are seen in winter, but very seldom, at Fréjus, and at Laval, near Grasse.

Glossy Ibis, *Ibis falcinellus*. Le Courlis vert, (*Buffon*). Le Corlis marron, (*Briss.*) Has been killed in Camarque several times, and twice, to my knowledge, in the plains of Laval. I do not remember at what time, and no sportsman can give me any information respecting this bird.

Gull-billed Tern, *Sterna Anglica*. Hirondelle de mer, (*Temm.*) It has been occasionally seen on our coasts in the spring.

Great Black-backed Gull, *Larus marinus*, and
Herring Gull, *Larus argentatus*. These two birds are sometimes seen in winter.

Ferruginous Duck, *Anas leucophthalmus*.

Brent Goose, *Anas Bernicla*.

Hooper, or Whistling Swan, *Anas Cygnus*.

Common Sheldrake, *Anas Tadorna*.

Pintail Duck. *Anas acuta*.

Appearance in our country rare, and only when the cold is excessive.

II. REGULAR BIRDS OF PASSAGE.

Common Buzzard, *Buteo vulgaris*. La Buse, (*Temm.*) Arrives at the end of March or beginning of April, returns in October; lives during the summer in the woods on the heights and in the middle of Provence, but is rarely seen on the shores.

Honey-buzzard, *Pernis apivorus*. The same observations.

Peregrine Falcon, *Falco peregrinus*. Faucon pelerin, (*Temm.*) It arrives at the end of March, April, or beginning of May, and leaves us in September, October and November. This bird remains sometimes all the year in the rocks of Provence. Its travels commence with those of the smaller birds, and conclude with theirs. This observation may be made on all the birds of prey, and especially on the

Hobby, *Falco subbuteo*.

Merlin, *Falco Æsalon*. Last days of spring and the beginning of autumn.

Kestrel, *Falco tinnunculus*. Faucon Cresserelle, (*Temm.*) Accompanies the larks in their travels.

Sparrow Hawk, *Falco Nisus*. Same passage as the peregrine falcon. Some of these birds winter in those localities which abound with small birds.

Long-eared Owl, *Strix otus*. Hibou moyen duc, (*Temm.*) Arrival uncertain; common at the time of its departure in October and November.

Short-eared Owl, *Strix brachyotos*. Beginning of November; vernal passage unknown.

Carrion Crow, *Corvus Corone*. Corbine, (*Buffon*). This species does not appear in the spring in our countries, but it is seen in large flocks at the end of October, in November, and sometimes later. It always directs its course westward. Roux asserts that they do not cross the sea. Sportsmen have told me that the flights which they see in autumn quit Europe; therefore those which are seen in winter wander along the shores of the Mediterranean, without thinking of crossing it.

Rook, *Corvus frugilegus*. Never descends to the shores, but remains during winter in the heights of Provence.

Magpie, *Corvus Pica*. Arrives in April, departs in October. During the winter innumerable flocks remain stationary at Hyères and at Fréjus.

Jay, *Corvus glandarius*. Le Geai d'Europe, (*Cuvier*). Resident. Flocks of these birds appear to leave us in October; their spring arrival is not ascertained.

Golden Oriole, *Oriolus Galbula*. Le Lorient, (*Temm.*) Arrives in April to pair, departs singly during the first fortnight in September.

Starling, *Sturnus vulgaris*. L'Étourneau, (*Temm.*) Arrives in March and early in April, in small flocks, departs at the end of September, October and rarely as late as November; they then form very large flocks.

Great Grey Shrike, *Lanius excubitor*, and
Lanius meridionalis,

Arrive in March and April, leave in September. These two species are rare.

Lanius minor. Arrives and departs with the preceding, but is still more uncommon. Roux asserts that it nestles in Provence.

Red-backed Shrike, *Lanius collurio*. Pie-grieche grise, (*Temm.*) In Provençal, Darnagas. Arrives in April, departs in August and September; several remain during the winter. This species is common.

Wood-chat Shrike, *Lanius rufus*. Same dates of migration as the preceding, but is a rare species.

Muscicapa albicollis. Arrives in April and departs in September. A rare species.

Pied Flycatcher, *Muscicapa atricapilla*. Le Gobe-mouche bec-figue; le Traquet d'Angleterre, (*Buffon*). Arrives in April and departs in September. A common species.

Missel Thrush, *Turdus viscivorus*. Merle draine, (*Temm.*) Arrives during February and March; departs in autumn and sometimes in winter. A small number only leave us, the greater part pass the winter in our pine-forests.

Fieldfare, *Turdus pilaris*. Merle litorne, (*Temm.*) Tordelle (*Buffon*). Claque in Normandy, Chaca in Provence. Only arrives in Provence when the cold is excessive at the beginning of winter. It stays in the wildest places, and departs at the approach of spring. It does not cross the sea.

Song Thrush, *Turdus musicus*. Merle grive, (*Temm.*) La Grive des Vignes, (*Viellot*). Lou tourdre, Provençal. This is the bird of passage, *par excellence*, of our country. It arrives at the end of February and in March, with the warm east winds and a little rain; it begins to return about the end of September, but some prolong their stay until November, or even the commencement of the winter. Some indeed pass the whole of the winter with us, and in the spring they cross the Mediterranean in a direct line. In autumn they direct their course towards the west, even when the wind blows from the east. They travel more by night than by day, and on this account, in Tus-

cany, they spread a net for them on fine moonlight nights in October, by which means a vast number of these birds are captured. (See 'Report of the Society of Sciences of Var,' 1838).

Redwing, *Turdus Iliacus*. Merle Mauvis, (*Temm.*) This bird arrives here on its passage northwards in March or the beginning of April, and appears again on its southward passage about the middle of October, or later. It is seen in small flocks, and I cannot find that it stays here during the winter.

Ring Ouzel, *Turdus torquatus*. Merle à plastron blanc, (*Buffon*). This bird is always seen early in the spring. It has been observed towards the end of February; on one occasion it was seen as late as the 15th of April. The cold of November brings it back to us regularly. None remain with us during winter, not even on the shores of the Mediterranean, or in the neighbouring islands; so that among all the birds of this tribe which are sent from Corsica every winter to Toulon and Marseilles, by thousands, we do not find one ring ouzel before the end of February.

Blackbird, *Turdus Merula*. Le Merle noir, (*Temm.*) Some blackbirds come in October; the cold weather brings them in great numbers: the greater part remain stationary on the shores, or else reach the isles of the Mediterranean. They are attracted by the fruit of the myrtle, which fattens them and gives them an exquisite flavour. Early in the spring they return northwards; some, however, nestle in the centre of Provence.

Turdus cyaneus. Stationary in Provence all the year. I have been told that some migrate in the autumn, but the accounts are unsatisfactory.

Turdus saxatilis. Arrives in numbers in April, the numbers are lessened in the autumnal migration. It is thought that they travel westward.

Sylvia turdoides. Bec fin rousserolle (*Temm.*) La Grosso, Provençal. Arrives from the 8th of March to the 18th of April; departs from the 15th of September till the 20th of October.

Grasshopper Warbler, *Sylvia locustella*. Its arrival seems to continue during the whole of the spring, and its departure during the whole of the autumn.

Sedge-warbler, *Sylvia Phragmitis*.

Reed-warbler, *Sylvia arundinacea*. Bec fin des roseaux, (*Temm.*)

Sylvia paludicola.

Sylvia palustris.

Same observations as under *Sylvia locustella*, except that *S. Phrag-*

mitis and *S. arundinacea* scarcely ever arrive before the middle of April.

Nightingale, *Philomela Luscinia*. Arrives in the month of April. Sportsmen have assured me that the males precede the females by about fifteen days, and that they only begin to sing after the arrival of the latter. Is this true? They depart in September, and at this time are quite solitary.

Blackcap Warbler, *Curruca atricapilla*. Arrives in April, departs from the 20th of September till the 10th of November.

Garden Warbler, *Curruca hortensis*. This species is very common in summer; it arrives in April, and departs from the 20th of August till the 15th of September.

Common Whitethroat, *Curruca cinerea*. Same as *C. atricapilla*.

Dartford Warbler, *Sylvia provincialis*. Arrives in April, departs at the end of September and October.

Redbreast, *Erythaca rubecula*. Le Rouge Gorge, (*Buffon*). Migrations very variable; arrives from the north with the cold and quits us with it: it is neither seen in the spring nor in the summer.

Black Redstart, *Phœnicura Tithys*. April and September; a rare species. Individuals solitary.

Redstart, *Phœnicura ruticilla*. Bec fin de murailles, (*Temm.*) This species is the most common of our birds of passage. It arrives in April, and returns during September and October.

Willow-warbler, *Sylvia Trochilus*. Bec fin Pouillot, (*Temm.*) Vernal passage unknown. It arrives in autumn with the first white frosts, remains till the cold weather is settled, and then disappears.

Dalmatian Regulus, *Regulus modestus*. Gui-gui, Provençal. Arrives early in the autumn, remains all the winter without crossing the sea, and quits us early in the spring to return to the north.

Saxicola cachinnata. Is seen in very cold weather in lonely rocky places, does not cross the sea.

Wheatear, *Saxicola Œnanthe*. Le Motoux, (*Buffon*). Arrives from the end of March until May; immense quantities are destroyed at this time on the sea-shore. Some are again seen in the mountains in July. They arrive on the autumnal passage about the 15th of September, and remain with us till the 15th of October; when they are again seen on the wing, directing their course towards the sea. Many of them nestle in the barren localities among the heights of Provence.

Whinchat, *Saxicola rubetra*.

Saxicola aurita.

Saxicola stapanina.

These three rare species always occur in company with *S. Œnanthe*. Stonechat, *Saxicola rubicola*. Spring arrival unknown; departs in October, November, and even December.

Alpine Accentor, *Accentor alpinus*. Appears in winter; does not cross the sea, does not even descend to the shore.

Hedge Accentor, *Accentor modularis*. Le Pégot mouchet, (*Cuv.*) Seen in winter. Contrary to the opinion of ornithologists, sportsmen assure me that these birds cross the sea, since they are to be seen regularly about our shores in spring and autumn, at the time of their passage.

White Wagtail, *Motacilla alba*. Arrives in March and during the first fortnight of April; returns in October and November. A great number remain during the winter: the residents are always solitary, the migrants in pairs or small flocks.

Grey Wagtail, *Motacilla Boarula*. Departs in the autumn like the preceding, does not reappear until April.

Yellow Wagtail, *Motacilla flava*. Arrives in March, and sometimes at the end of February, when there is rain; departs at the end of the summer and the beginning of autumn; does not winter in Provence.

Anthus rufescens. La Rousseline, (*Buffon*). Arrives at the end of April, departs in September; does not winter in Provence.

Meadow Pipit, *Anthus pratensis*. Le Cujelier, (*Buffon*). This bird arrives in autumn with the skylarks, and returns to the north in the spring. The greater part of them pass the winter in the plains, the meadows and the marshes of this country; those which have migrated return in the early part of April, and sometimes a little earlier.

Tree Pipit, *Anthus arboreus*. Vernal arrival unknown, appears towards the commencement of autumn; travels in pairs. M. Pellicot asserts that when one is killed, the other remains in the neighbourhood for several days, until more arrive.

Rock Pipit, *Anthus aquaticus*. Arrives in April and departs in October: a rare species.

Cole Titmouse, *Parus ater*. Resident: some leave us in September; the spring arrival has not been observed.

Blue Titmouse, *Parus cæruleus*. Resident: some migrate in September and October and return in April.

Parus pendulinus. The elegant nest of this species is found on the banks of the Rhone and of the Var.

Skylark, *Alauda arvensis*. Many of these birds winter on our borders, and leave us during the months of February and March. Those

which come from beyond sea, arrive in these months, and only pass through. They reappear towards the end of September, but we do not see many of them until the first white frosts, when the north-east wind succeeds the rain, and continues until the approach of winter. Those which then arrive pass the bad season with us. In January, 1837, the ground being covered with snow throughout all the rest of France, innumerable flocks of larks came to us from Languedoc, contrary to their habitual route, which is from east to west; they were in a famishing state, and devoured all the food they could find, fearing nothing, and even killing and eating one another.

Alauda nemoralis. Arrives in March and the beginning of April and returns in September and October, like the preceding. Some individuals winter on our coasts.

Short-toed Lark, *Alauda brachydactyla.* Arrives in April and returns in September, rather earlier than the skylark; during its passage it scarcely ever settles. None remain with us during the winter.

Yellow Bunting, *Emberiza citrinella.* Arrives at the end of February and March, begins to return about the end of October, and continues leaving us until the winter.

Cirl Bunting, *Emberiza Cirlus.* The same observations apply to this as to the preceding species.

Common Bunting, *Emberiza Miliaria.* Arrives at the end of March, reappears on its passage at the end of September: many winter here.

Black-headed Bunting, *Emberiza Schœniclus.* Arrives in March and April, departs in October and November.

Ortolan Bunting, *Emberiza hortulana.* Bruant Ortolan, (*Temm.*) Arrives in April: the young birds return about the middle of August, but the old ones remain until the middle of September. The capture of this very common but very delicate species, is an object of considerable importance in Provence.

Emberiza cia. Appears in November. My observations respecting this species are incomplete.

Hawfinch, *Coccothraustes vulgaris.* Passes in April, when the seed of the witch-elm, of which it is very fond, is ripe; it repasses when the olives ripen, at the end of October or November. Very few winter here.

Greenfinch, *Fringilla chloris.* Grosbec verdier, (*Temm.*) Arrives in March and April, but not much seen: returns from the end of September until November. Some winter here.

Fringilla petronia. La Soulcie, (*Buffon.*) Arrives on its passage at the end of February, repasses in large flocks from the 15th of Oc-

tober to the 15th of November : none remain stationary. Sportsmen have told me that these birds fly along the coast in both their passages.

House Sparrow, *Pyrgita domestica*. Le Moineau, (*Temm.*) Some leave us in the autumn to return after the hoar frosts, but this mischievous bird is but too stationary.

Tree Sparrow, *Pyrgita montana*. Arrives from the 20th of February to the 15th of March, returns in large flocks from the 10th of October till the end of November. A few winter with us.

Chaffinch, *Fringilla cœlebs*. Most of these birds remain with us : those which migrate in the autumn return in April.

Fringilla Serinus. Le Cini, (*Buffon*). Arrives in February and March, returns in numerous bands from the end of September until December : many winter with us.

Fringilla Canarina. Resident in many parts, and this prevents our being well acquainted with the periods of its migration.

Cuckoo, *Cuculus canorus*. Arrives in April and departs in August.

Green Woodpecker, *Picus viridis*. Arrives in the middle of Provence during the severe frosts, never descends to the shores.

Wryneck, *Yunx torquilla*. Le Torcol ordinaire, (*Temm.*) Arrives at the end of April, departs during August, September, and early in October.

Nuthatch, *Sitta Europæa*.

Common Creeper, *Certhia familiaris*, and

Certhia muralis.

These three species are resident with us.

Hoopoe, *Upupa Epops*. This beautiful species passes in April and early in May, and in September : it crosses the sea direct in both its passages.

Bee-eater, *Merops Apiaster*. This bird is seen regularly upon the shores every year, in the second and third weeks in May, but it is scarcely ever seen on its return, which takes place in September. It always arrives on the western coast, which gives rise to a general opinion that it makes a tour round the Mediterranean in its migrations. Some of them nestle in Provence, in the holes of the rocky shores of the river Argens.

Chimney Swallow, *Hirundo rustica*. Arrives in April, departs in October.

Martin, *Hirundo urbica*. This species both arrives and departs a few days before the preceding.

Hirundo montana. This species arrives before any of the others. We see it from the 17th of March. It departs also after the others ;

we see it as late as November and December, in very exposed places. I have been told that some of them pass the winter in the rocks of the mountain of Faro, near Toulon.

Sand Martin, *Hirundo riparia*. The same observations apply to this species as to the house martin.

Alpine Swift, *Cypselus alpinus*. Does not arrive here on its passage northward till the 15th of April, remaining till the end of May; it reappears on its southern passage in August, and again leaves us in September.

Common Swift, *Cypselus Apus*. Arrives towards the 1st of May, and soon disappears, going northwards; it revisits us on its southern passage at the same time as the preceding species.

Ring Dove, *Columba Palumbus*. Arrival scarcely observable in February and March; it is not then seen near the shores, and the belief is that it returns to Italy. It migrates again in October and early in November, in small flocks, coasting the shores of the Mediterranean, and directing its course westward. Many of them winter in our oak forests.

Stock Dove, *Columba Œnas*.

Rock Dove, *Columba Livia*.

The same observations apply to both these species as to the ring-dove.

Turtle Dove, *Columba Turtur*. Arrives at the end of April and in May, having crossed the sea in a straight line. The woods upon the shore are filled with them; and on the 10th of May of this year, being out botanizing, I saw more than ten couples on the same day; nothing was heard but their plaintive notes. They depart in September. They follow the shore in a westward direction, like the pigeon.

Ptarmigan, *Lagopus vulgaris*. This species, as well as its congeners (T. Bonasia, T. Urogallus and T. Tetrix), is unknown in lower Provence, but is seen in winter in the environs of Castellane, where I have eaten them during my stay there.

Common Quail, *Coturnix vulgaris*. La Caille. This bird arrives at Grasse, on its spring passage, from the 25th of April to the 20th of May, but stays with us a very short time. The period of the autumnal passage is anxiously awaited by experienced sportsmen. A few birds breed with us, and these, together with their young, are seen on the moors before the main migration, which begins on the 10th and continues to the 20th of August. On some occasions, when the temperature has continued warm, and the weather perfectly dry, the migration has been delayed for an entire month: the main body then

passes between the 10th and the 20th of September, and a few stragglers have frequently been observed as late as the 12th and 14th of October. Quails never winter in Provence: but many remain during that season in Corsica, from whence the Toulon market receives its winter supplies. Sportsmen assert that the earlier migrants are entirely males; and it is very certain that towards the close of the migration females vastly predominate: and this is so invariable, that experienced men will predict with great precision the duration of the migration, by the comparative number of the sexes observed or killed in their passage. The latest flocks are composed solely of females and young, without the occurrence of a single adult male. A west wind, accompanied by light rain, is favourable to migration, but a stormy sky or dense fog always delays it. Like the rails, woodcocks, snipes, and many of the waders, the quail, when it travels towards the sea-shore, flies only in the night. It leaves the lands where it has passed the day about the dusk of the evening, and settles again with the dawn of morning. On this account it is that there is a zone near the shore, parallel with the sea, where the quails are seldom seen: sportsmen are well aware of this.

It is generally believed in this country, that when the quails exchange the shores of France for the coast of Africa, they pass the sea without stopping. I am of a different opinion. I believe that they stay in the isles of Corsica and Sardinia, or on the other side of the Balearic Isles. What confirms me in my opinion is, that quail-shooting in Corsica and Sardinia is considered magnificent sport. The objection to this opinion is, that there is nothing to prove that the quails which arrive in these isles come from France. It is true that another objection* is, that there is nothing surprising in crossing the Mediterranean in one night, since, if we allow the flight of the quail to be equal to that of a pigeon, that is to say, fifteen leagues an hour, the quail will only require from eleven to thirteen hours to make the passage, and only eight or ten if we grant it the same velocity as the ring dove. It is asserted that the quail possesses very great muscular strength; and besides that, the rapidity of birds in travelling is surprising. The falcon of Henry II. being let fly after a little bustard (*Otus Tetrix*), in the wood of Fontainebleau, was taken on the morrow in the island of Malta, and known by its collar. And to these objections the following may be added. In autumn, a great number of

* I draw these objections from an article 'On Quail-shooting,' published by M. Pellicot, chasseur de Toulon, in the Report of the Société des Sciences du Var, 1838.

quails are seen near the coast of Africa, and near our coasts in the spring. "Being at a small town on the coast in the month of May," says M. Pellicot, in the article above quoted, "I saw some boats come in with ten or a dozen sharks. They were all opened before me, and there was not one which had not from eight to twelve quails in its body." So many sailors have assured me of the same fact, that I cannot doubt its truth; but I wish to know if they were not borne down by a violent gust of wind, and this I have never been able to ascertain: for if it was the consequence of a squall, it is evident that whether they came from far or near, they would be sure to fall. Besides, if they came from a distance, fatigue, added to the force of the wind, would cause them to fall, which would not be so likely to happen if they had not come far. I confess with sincerity that I have nothing to disprove this objection, which I make myself; but I ought also to add, in favour of my opinion, that the quails reassemble on our most prominent capes — the Cape of Nice and the Cape of Villefranche; and if they do that to spare themselves some leagues of travel, their instinct would for the same reason lead them to profit by those points of rest, which the Creator has provided for them over the deep. Be this as it may, it seems certain to me that the quail does not rest on the sea, guided by a favourable wind, with its wing raised for a sail, as ancient naturalists have believed and poets have sung; that sailors — strangers to Physiology — believe it, does not surprise me, as appearances so strongly favour the idea; but observation and inference ought to be sufficient to confute this erroneous opinion. In the first place, the quail has not in its rump that oil which is used by the Palmipedes to polish their plumage, and to render it impermeable. 2. They have not that down on the belly which, permeable by the air though repelling the water, preserves the Palmipedes from an immediate contact with that element. On this account, the moment the quail touched the water its feathers would be soaked through, and would stick to its belly; at the same time, its divided feet would neither serve to propel or direct its course. It may be said that it is propelled by the wind, and that the wing answers the purpose of a sail; but the wing of a quail is so formed that it has not the power of employing it in a vertical and transverse position; it would be broken and distorted: and moreover, could the wing be so placed, a wind from behind would be the only wind that could possibly navigate this little boat, deprived of oars and rudder. Sailors and fishermen often perceive the period of the migrations of the quails over the water, but it is either fatigue or the wind which beats them down, and it may be affirmed, without

a chance of error, that they would soon be drowned. If a wave bore this bird on its crest, at the moment when it lowered its flight, it might perhaps soon rise in the air again, if its wings were only struck *by the air*, but this would be a rare exception; if its wings had touched the water, which is most probable, it is certain they would be rendered powerless: to which we must add that the bird is wet, that it is unable to make that first spring which it takes when rising from the earth, and we are forced to conclude that this bird ought not to seek on the water for a repose which is too certain to be fatal.

Great Plover, *Edicnemus crepitans*. Arrives in March and April, the return commences in October, and is prolonged until the 20th of December. A great number winter in our country. They pass the day under the hillocks which are covered with *Cistus albidus*, *C. salvifolius* and *C. Ledon*, and towards sunset they reassemble in flocks, to go and feed on the plains.

Himantopus rufipes. Has a regular double passage, but as it never stops, it is very rarely killed, and the exact periods are unknown to me.

Oyster-catcher, *Hæmatopus ostralegus*. Is seen every spring upon our shores, and particularly near Martigues.

Golden Plover, *Charadrius pluvialis*. Arrives in March, returns from the 1st of November until the end of December, and even later. Always travels during rainy weather.

Dotterel, *Charadrius Morinellus*. A very few pass through in the spring and during the cold weather.

Ringed Plover, *Charadrius Hiaticula*. Periods of migration as in the golden plover. Some nestle near the ponds of Hyères and Martigues. I have been told that during the day they do not cover their eggs, which, being laid on the sand, are kept at a proper temperature by the sun.

Kentish Plover, *Charadrius Cantianus*. The same observations apply to this as to the preceding species.

Little Ringed Plover, *Charadrius minor*. It has been observed on both passages, but the periods have not been ascertained with precision.

Grey Plover, *Squatarola cinerea*. Arrives on its spring passage at the end of February and during the month of March, and on its autumnal passage towards the middle of October: it continues with us during the first part of winter, and is almost always seen in tempestuous winds and cold and stormy days.

Lapwing, *Vanellus cristatus*. Passes at the same time as the grey plover. This species is more common than the preceding.

Turnstone, *Streptilas interpres*. Le Tourne pierre, (*Buffon*). Visits us twice during the year.

Common Crane, *Grus cinerea*. It passes in March, and the beginning of April, and again in October and November. We see them pass along in long lines, at an immense height. They never rest here.

White Stork, *Ciconia alba*. Passes in March and April, and again on its return in November, and often settles in the marshy meadows.

Black Stork, *Ciconia nigra*. Passes at the same periods as the preceding, but makes a longer stay with us.

Common Heron, *Ardea cinerea*. Arrives in April, returns from the middle to the end of autumn.

Purple Heron, *Ardea purpurea*. Passes at the same time as the common heron in spring, but scarcely ever appears again in autumn.

Great White Heron, *Ardea Egretta*. Occasional visitor.

Little Egret, *Ardea Garzetta*. It arrives in the spring, with the purple heron, but, like that species, is not seen on its autumnal passage.

Night Heron, *Nycticorax Gardeni*. Stays here from the month of April till the summer: during autumn it is seen on the borders of ponds and marshes.

Common Bittern, *Botaurus stellaris*. Its stay here is the same as the preceding, as it is generally stationary in the marshes of Arles, Martigues and Hyères.

Little Bittern, *Botaurus minutus*. Very common in April, October and November.

Common Curlew, *Numenius arquata*. Arrives about the end of February, if the season is rainy; more frequently in March and April. It stays a short time on this passage, and also in that of December.

Whimbrel, *Numenius phæopus*. Seen at the same time as the curlew, but does not stay so long.

Curlew Sandpiper, *Tringa subarquata*. Arrives in April and returns only with the cold of winter.

Knot, *Tringa Canutus*.

Purple Sandpiper, *Tringa maritima*.

Dunlin, *Tringa variabilis*.

Temminck's Stint, *Tringa Temminckii*.

These four species migrate at the same periods with the curlew sandpiper: the purple sandpiper is less common with us.

Little Stint, *Tringa minuta*. It is with us in April and towards the end of autumn.

Ruff, *Tringa pugnax*. In April and in winter. Our sportsmen make two species of ruff. In spring, when they choose their mates,

they call them *Charlo goufaru*, that is to say, *brilliant woodcock*; and in winter they call them *Charlo pluvii*, signifying *rainy woodcock*.

Common Redshank, *Totanus calidris*. It comes from the north with the first frosts, and winters in Provence, about the mouths of rivers; some however pass beyond us, and return in April.

Totanus stagnatilis. Seen in the spring but scarcely ever in autumn.

Green Sandpiper, *Totanus ochropus*.

Wood Sandpiper, *Totanus glareola*.

Their migrations the same as those of the redshank.

Common Sandpiper, *Totanus hypoleucos*. This bird visits us in April and December, but does not stay on either passage.

Black-tailed Godwit, *Limosa melanura*. Spring arrival in March and April; its return varies with the cold of November.

Woodcock, *Scolopax rusticola*. La Becasse. We see these birds arrive from the 20th of February; they rarely stop on their vernal passage, and it is only when pressed by hunger and fatigue that they rest on the banks of rivers, never in the woods. They reappear from the 1st of November to the end of the month. The earliest arrivals only cross the country, the birds which arrive in the morning leaving us in the evening. About the 25th of the month they stay longer, and those which are driven down by the sudden cold remain stationary, and do not leave till March: they pass the winter in the woods.

Great Snipe, *Scolopax major*. Arrives in April and May, and re-passes about the end of the summer.

Common Snipe, *Scolopax Gallinago*. The same remarks apply to the snipe as to the woodcock, only that it is less wild, and stays with us a little while on its vernal passage.

Jack Snipe, *Scolopax Gallinula*. It appears at the end of February, in November, and during the cold weather.

Water Rail, *Rallus aquaticus*. Arrives in March; the return commences on the 29th of September, and is prolonged until the winter is far advanced. A great many remain during the whole of the winter in our marshes.

Land Rail, *Rallus Crex*. This bird arrives at the end of April and commencement of May, and begins to return about the middle of September. It is seen during the month of October, and has been killed here as late as the 15th of November. It does not winter in Provence. They appear with the quails (but are far less numerous), and frequent the same places; and as they are much larger, and always appear to conduct them, they have received the name of *King of the quails*.

Spotted Crake, *Gallinula porzana*. Arrives at the end of Febru-

ary, March and April. There are generally two or three days in each spring on which these birds travel in great numbers, while at other times we see very few of them. In the year 1837, these travelling days were the 16th and 31st of March, and the 2nd of April. The return begins at the end of September, and is continued in full force until the 20th of October : it is prolonged until November when there has not been much rain. Very few winter here.

Little Crake, *Gallinula pusilla*. Seen in large numbers in March, April, and the first days of May ; not seen again in autumn.

Moor-hen, *Gallinula chloropus*. The arrival of this bird takes place between the end of February and the 25th of April, when the weather is mild and damp. The return is continued from the 1st of October until about the 8th of November.

Common Coot, *Fulica atra*. The coots arrive at the end of March, in April, and even in May. They are then seen singly or in pairs about the ditches, among the rushes. They return during the cold weather in November and December : they are then seen in large flocks, and cover the ponds. On the 23rd of December they are the object of a regular and very celebrated sport on the pond of Martigues. I may here remark that several divers, the scientific names of which I cannot give with precision, appear annually on our shores.

Grey-legged Goose, *Anas Anser*. Passes in March and April, and repasses from the first cold of autumn until the beginning of winter : it only rests here when the weather is very cold.

Bean Goose, *Anas segetum*. Passes at the same periods as the preceding species, but is more rare.

White-fronted Goose, *Anas albifrons*. Passes with the two preceding, but is more rare than either.

Wild Duck, *Anas Boschas*. Arrives at the end of February and in March, returns in November, after the rains and the first cold ; comes in great quantity towards the 15th of December, and many winter here.

Gadwall, *Anas strepera*. Migrates with the preceding, but is very rare.

Wigeon, *Anas Penelope*. Migrates with the wild duck ; the species is abundant.

Shoveller, *Anas clypeata*. Migrates with the wild duck, but is more rare.

Garganey, *Anas Querquedula*. Migrates with the wild duck : many winter in our marshes.

Teal, *Anas Crecca*. Migrates with the wild duck, winters with us.

Pochard, *Anas ferina*. Migrates with all the preceding ducks, but is more common than any.

Tufted Duck, *Anas fuligula*. Arrives at the end of March and returns in October : is common in Provence.

Common Scoter, *Anas nigra*. Only appears with very cold weather.

Smew, *Mergus albellus*. Appears to winter here.

Common Cormorant, *Carbo Cormoranus*. Appears on our ponds in winter, but few in number.

J. DUVAL-JOUVE.

Grasse, July 16, 1845.

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from page 1072).

DIVISION VI.

Group b.

Corn Crake, *Crex pratensis*. Comes and leaves at the same time as the quail. It nestles commonly in damp pastures, and the young, generally from six to ten in number, run about as soon as they are born. The peasantry call this bird the King of the quails, (*König der quakkel*).

Spotted Crake, *Ortygometra porzana*. Is common in marshes, lakes and reedy ponds. This pretty little crake comes in March and leaves in October. This species dives and swims well, but is seldom seen in open water, being naturally very shy ; I have, however, often observed it flying over the surface of a pond in my neighbourhood, and resting on the broad leaves of the water-lily, which scarcely bent under its weight. It lays six or eight eggs, of a pale brown colour, with speckles of different intensity of a deeper brown.

Water Rail, *Rallus aquaticus*. Common in all stagnant waters. This species is remarkably quick in its motions ; one that I kept for some time in a room, would run round and round, jumping or rather scrambling over chairs, tables, closets &c., with such rapidity that the eye could scarcely follow its movements. It comes in March and leaves in the first months of autumn. This rail lays from seven to ten eggs, which are rather large, yellowish, and spotted with brown.

Moorhen, *Gallinula chloropus*. Nestles and lives in reedy lakes and marshes : very common. The migrations of this bird are only partial, many being seen all the year round on unfrozen waters. The habits of this species are too well known to need repetition.

Coot, *Fulica atra*. This bird, which is rather uncommon, and difficult to observe on account of its timidity and nocturnal habits, is found nestling in our great marshes. At the time of its migrations (in March and April, September and October), it is to be met with on the rivers and ponds of the whole kingdom. In the Vosges mountains, in France, this bird is resident on some of the lakes.

Little Ringed Plover, *Charadrius minor*. I am not very certain that this bird builds with us, as I have never yet found its nest; but its being seen all through the summer, in some damp localities, has induced me to place it in the present group. It is a bird of passage in spring and autumn on several of our rivers, and on the sea-shore.

Kentish Plover, *Charadrius Cantianus*. Nestles on our shores and leaves in winter. The majority of these birds are migrants, which only show themselves on our shores on their passage in spring and autumn.

Peewit, *Vanellus cristatus*. In spring and autumn vast flocks spread over the country, and may be seen in pastures and ploughed fields. Great numbers nestle in our marshes. The common people here call them *Kewit*, which has much resemblance to the English name.

Ruff and Reeve, *Machetes pugnax*. Common in the marshes of Antwerp at the time of its migrations, when great numbers are killed and sent to the Brussels market, where they sell as snipe. This bird very seldom nestles with us, though it does so commonly in Holland.

Common Sandpiper, *Totanus hypoleucos*, and Green Sandpiper, *T. ochropus*. Both come in April and leave in September. The first species is very common in the flat country on the banks of slow rivers; the second occupies its place in the rocky parts near rapid streams and rivers. They both occasionally nestle in Belgium, but the greater number push their migrations further north and south.

Common Bittern, *Botaurus stellaris*. Rather common in large marshes, reedy lakes and large swampy ponds, in the provinces of Antwerp and Limbourg; seldom met with in the interior. It nestles here. I have not been fortunate enough to observe its habits in a wild state.

JULIAN DEBY.

Laeken, July 15, 1845.

(To be continued).

Dates of Arrival of Birds observed in Laeken, in the first Ornithological Season, (the Spring). The very bad season we had this spring, having nearly precluded all out-of-door observations, I beg the readers of 'The Zoologist' to excuse the incompleteness of the subjoined list.

Fieldfare, <i>Turdus pilaris</i>	Febr. 7	Spotted Crake, <i>Crex Porzana</i> ...	April 8
Goldcrest, <i>Regulus cristatus</i> ...	20	Whcatear, <i>Saxicola Œnanthe</i> ...	13
Nuthatch, <i>Sitta Europæa</i>	20	Wood Wren, <i>Sylvia Trochilus</i>	13
Tree Pipit, <i>Anthus arboreus</i> ...	Mar. 10	Blackcap, <i>Sylvia atricapilla</i> ...	20
Long-tailed Titmouse, <i>Mecistura</i>		Black Redstart, <i>Phœnicura Ti-</i>	
<i>caudata</i>	10	<i>thys</i>	21
Lapwing, <i>Vanellus cristatus</i> ...	22	Short-eared Owl, <i>Otus brachyotos</i>	24
Missel Thrush, <i>Turdus viscivorus</i>	23	Wryneck, <i>Yunx torquilla</i>	25
Snipe, <i>Scolopax Gallinago</i>	23	Cuckoo, <i>Cuculus canorus</i>	26
White Wagtail, <i>Motacilla alba</i>	24	Woodchat, <i>Lanius rufus</i>	26
Song Thrush, <i>Turdus musicus</i> ...	24	Goatsucker, <i>Caprimulgus Euro-</i>	
Green Sandpiper, <i>Totanus ochro-</i>		<i>pæus</i>	29
<i>pæus</i>	29	Whitethroat, <i>Sylvia cinerea</i> ...	29
Common Sandpiper, <i>Totanus</i>		Ortolan, <i>Emberiza hortulana</i> ...	29
<i>hypoleucus</i>	29	Swift, <i>Cypselus Apus</i>	May 1
Woodcock, <i>Scolopax rusticola</i> ...	29	Golden Oriole, <i>Oriolus Galbula</i>	3
Swallow, <i>Hirundo rustica</i>	30	Flycatcher, <i>Muscicapa grisola</i> ...	6
Moorhen, <i>Gallinula chloropus</i> ...	April 4	Pied Flycatcher, <i>Muscicapa luc-</i>	
Coot, <i>Fulica atra</i>	6	<i>tuosa</i>	8
Nightingale, <i>Philomela Luscinia</i>	8	Martin, <i>Hirundo urbica</i>	9

— Julian Deby ; Laeken, July 15, 1845.

Food of the Honey Buzzard. In a late number (Zool. 1053), Mr. Hogg expresses a belief that the honey-buzzard (*Pernis apivorus*) never eats honey. In this I think he is in error, as an individual of this species kept in confinement by Mr. John Hancock, not only ate honey, but did so with great apparent relish, preferring it to other food.—*T. J. Bold* ; 42, Bigg-market, Newcastle-on-Tyne, August 8, 1845.

Plumage of the Marsh Harrier. In the same page as the preceding (Zool. 1053), I find the remark that “the younger birds of the marsh harrier (*Circus æruginosus*) are without the yellowish white mark on the crown of the head ;” as this seems contrary to what I have observed, I will briefly state the fact, hoping that some more able observer may attend to the subject. I have now before me the skin of a male in the nest plumage ; the colour is of a very dark brown, both above and below, with the head from the base of the bill to beyond the occiput, the throat, and a few feathers on the breast, cream-coloured, very slightly tinted with brown, the shafts of the feathers alone being dark ; the tail, secondaries, wing-coverts and scapulars, are tipped with red brown. This and two other specimens (male and female, which are precisely similar in colour to the above) were purchased in Leadenhall market by Mr. John Hancock, in the summer of 1843. They were all from one nest, and so young as to have the down upon them ; on the feathers becoming perfect, they proved beyond doubt that this bird in its nest-plumage has a cream-coloured head. The male and female are in Mr. Hancock’s collection, the male in that of Mr. George Balmer, who also has a fine male in a dress which I should think approaches maturity, being uniform, and very dark brown, the upper parts appearing bronzed in some lights ; the crown of the head is rather lighter than the other parts of the plumage : the tail is ash grey, and a few feathers of the same colour are appearing on the wings. This species must be rare or very local, as I only know of one flesh-specimen that has reached here (Newcastle) for many years, and none of our dealers have ever had even a skin through their hands.—*Id.*

Nudity of the Rook's Throat and Forehead. I have to acknowledge your letter, in which you are so good as to say that you are anxious to receive some additional remarks from me on the subject of the nudity of the rook's throat and forehead, as the question appeared to be still undecided. Mr. Blackwall's experiment on a caged rook (Zool. 937) is, to say the least, entitled to very grave consideration, unless it can be supposed that such a strict imprisonment was so far prejudicial to the health of his bird as to cause an unnatural loss of that portion of its plumage (as high feeding and sedentary habits will sometimes render a city alderman prematurely bald), or (as was the case with one of my rooks, Zool. 633) that he could attribute the disappearance of its feathers to an acquired trick of thrusting its beak between the bars of the chicken-pen, or to some *confirmed* habit which might be attended with a similar result. I readily admit this, although his conclusions appear to be drawn from an imprisoned specimen, and not to be equally deduced from a general observation of the life and habits of the bird in a state of nature. When I had last the pleasure of seeing Mr. Yarrell, after a careful examination of my various specimens, the same which in illustration of my former remarks rendered the subject so "clear and decisive" to you, he also produced a stuffed specimen of an *adult* rook, the mandibles of which were so exceedingly distorted by being respectively curved upwards and downwards, that the bristle-like feathers which cover the nostrils, and the plumage of the throat, were still perfect, but a very small portion on either side of the base of the lower mandible was naked. How did this occur? Mr. Yarrell was in doubt. Who then shall decide! During the last three years I have examined many specimens of adult rooks, which have been shot in the wild state, both with perfect and with misshapen mandibles, and I have never known malformation of the bill and nakedness of the forehead and throat to be co-existent in the same individual. I have now in my possession a live rook of last year, one which I took from the nest in May, 1844, and therefore more than fourteen months old. As in my former experiment (Zool. 629) the young birds were always in a state of confinement, which might reasonably be supposed to injure their health, and therefore materially affect the shedding or reproduction of their plumage, I determined to allow this bird as much liberty as a pinioned wing would permit him to enjoy. Accordingly, he has been but half a prisoner. For many months he was suffered to roam through the garden and plantations, where he was left entirely to his own resources. About two months ago I removed him to a small enclosure, for the purpose of observing more accurately whatever changes might occur in the feathers of his throat and forehead; but with the exception of a trifling loss there, in which all his plumage participates, he still preserves his original appearance. Whether he will ultimately follow the example of Mr. Blackwall's bird, time alone must prove; but you may rely on my sending you an accurate account of the result, whatever it may be. And here I may be permitted to say, that another year's careful observation of the life and habits of the rook *in a state of nature*, since I penned my former remarks on this subject, have served to convince me of their accuracy, and to corroborate all that I have said as to the digging propensities of this bird being more especially developed during the breeding-season. Even admitting that the frontal feathers would, to a certain degree, gradually disappear of their own accord, I really cannot persuade myself that the peculiar state of the throat in all adult wild rooks can ever be produced without external violence, however much Nature may assist in the removal of the plumage. In addition to the "short filiform processes," the roots of worn-out feathers, frequently perceptible to the naked eye, and generally to the touch, are, under a magnifying glass, glar-

ingly distinct, and resemble the stumps of hair on a discarded shoe-brush. Now it is at least clear, that all this must take place at some period subsequent to the first or general change of plumage. In the specimens with malformed mandibles, both in Mr. Yarrell's possession and mine, which, after having doffed the dull black nestling dress, had assumed the purple livery of the adult bird, the facial plumage is still perfect, or nearly so, its disappearance (supposing that it does disappear of itself) having apparently been retarded by such a malformation of the mandibles as would preclude the possibility of the bird's thrusting its beak so far into the ground as to *assist* in the removal of the feathers from the forehead and throat; and the live bird now in my possession had acquired the purple tint on his head, back and shoulders, at the beginning of last winter. Admitting however that the nudity of the throat &c. does *not* entirely depend upon a mechanical cause, it may be supposed that this phenomenon would occur at an earlier period in a wild rook than in an incarcerated specimen (like Mr. Blackwall's), or in a semi-liberated one (like mine); I think it highly probable, therefore, that if this should, after all, turn out to be, to a certain degree, an original peculiarity in the rook, its commencement will be found to be coincident with, or to immediately precede the breeding-season, and I shall thus regard it as a merciful provision of that Providence which, as it "tempers the wind to the shorn lamb," has thus, in the case of the rook, anticipated the comparatively painful operation of a forcible removal of the plumage. In conclusion, I think you will admit that I have treated this subject dispassionately. The true naturalist can have but one object in view — the discovery of facts; and he would be but a bad interpreter of Nature's secrets, who could permit an obstinate attachment to a preconceived theory to obscure his sense of truth, or the cool convictions of his conscience. — *A. E. Knox; New Grove, Petworth, July 30, 1845.*

Occurrence of the Bearded Titmouse in Cleveland, and Note on the Osprey. In Mr. Hogg's Catalogue of the Birds of Cleveland, &c., I find one omitted which has come under my observation. It is the bearded titmouse (*Calamophilus biarmicus*), of which interesting species I observed a fine male close to Kirkleatham hospital, three or four years ago. I believe its appearance so far north has not hitherto been recorded. To the Catalogue I can also add, that an osprey, shot in the garden of a gentleman at Marske, is now in the possession of C. Oxley, Esq., Redcar. I do not think this bird so rare as it is generally supposed to be. Its flight and general appearance on the wing are not very unlike the young of the black-backed gull, for which it is sometimes mistaken, though to one who pays the least attention to Ornithology, the difference is very obvious. In a previous number (Zool. 443) I noticed the appearance of a bird of this species here two years ago; and this year, a pair of them appeared about three months ago, one of which, the female, is now lying before me, having been shot by my brother yesterday. It measures 5 feet 6 inches from tip to tip, and is 2 feet in length, weight, 4 lbs. I have compared it with the specimen shot two years ago, and find that the present one is much larger, and its back of a lighter and more uniform colour. *Mark Booth; Kitterby, Yorkshire, August 18, 1845.*

Habits of the Grey and Red-backed Shrikes. The grey shrike, the occurrence of which near Hull has been noticed (Zool. 1028), appears now to be everywhere only an occasional visitant: but some years since, as I was informed by the Rev. N. C. Strickland, they bred annually about the foot of Prestbury-hill, near Cheltenham, where the country people called them *horse-matches*. The only specimen that ever came under my own knowledge, was shot near Meysey Hampton, in Gloucestershire, during deep

snow, in the winter of 1827-8, in the act of seizing a fieldfare, a bird fully as large as itself. The red-backed species was then, and probably still is, by no means uncommon in that neighbourhood during summer, living together in families of ten or twelve, with only one or two adult males among the number. They frequent long hedge-rows, and uplands where the ground is covered with bushes, and do not fly far when disturbed. They usually perch on the topmost twigs of hedges, and the outermost branches of trees, uttering their peculiar chattering cry, both when perched and on the wing. In flying from one tree to another, they usually drop straight from the branch to within ten or twelve feet from the ground; and when they have reached their destination, they rise almost perpendicularly to the branch on which they intend to perch. Their castings, formed of the elytra and other hard parts of Coleoptera, are found in abundance about their haunts. I never found the nest, but the young seem to quit it soon, for about the first week in August I have found nestlings perched in hedges, quite unable to fly. Even in the very young birds, the males may be distinguished by a considerable admixture of grey with the brown of the head. The females vary considerably, some being plain ferruginous brown above, while others are pencilled or striated transversely with a darker shade, and the same variety prevails in the under parts, the scalloped markings extending in some over the whole surface, in others scarcely to the breast. They are very pugnacious when wounded and caught, biting almost as severely as a hawk.—*F. Holme; C. C. C. Oxford.*

Notes on Sand Martins at Oxford, on Swifts building under the eaves of Cottages, and on the Hibernation of Swallows. Among the last "fashionable arrivals" here, is a numerous party of sandmartins, a bird rarely seen in the neighbourhood of Alma Mater, and which are now disporting themselves on the Cherwell, in company with their congeners, from whom their more slender proportions, narrow curved wings, and oscillating flight, would distinguish them, even apart from the differences of colour. Their last visit was several years since, when a considerable number frequented Christchurch meadow throughout the summer, and probably built in the banks of the Cherwell. They had perhaps followed the course of the Great Western Railway, then in course of construction, as I saw many of their holes in the excavations in the sandy soil near South Moreton and Wallingford. While on the subject of swallows, a tribe of birds which have always been special favourites with lovers of Nature, I may mention my having once noticed the strange fancy of the swift, observed by White, in his 39th letter to Barrington, to run from one extreme to another in the choice of a place for nidification. Some years since I saw several pairs building under the eaves of some cottages, so low that the nest might easily have been reached by the hand, and flying in and out with as much confidence as the common martin in the outskirts of Thame. As the fact was new to all my naturalist friends, I was gratified to find it noticed by White. I have often seen the house-swallows, after the departure of the swifts, circling high in the air, in small parties, on fine evenings, as if in imitation of their betters, on whose aerial domains they had hitherto forborne to trespass. On the hibernation of this species, I was told many years since by old Wall, then keeper of the Kildare-street Museum in Dublin (whose sabre-riven skull, a memento of Vittoria, will be remembered by most who have seen him), that after a heavy snow, in the winter of 1825-6, on going into the *mansarde* to see whether the snow melted through, he found four chimney-swallows perched close together on a cross beam, with their heads under their wing; but on approaching his hand to them they flew off, and escaped into the open air.—*Id.*

Plumage of the Brambling. The variety of plumage in the brambling on its arrival, mentioned by Mr. Vivian Walmesley (Zool. 1024), is explained by the males being then in process of divesting themselves of their brilliant summer garb, and assimilating their colours to those of their partners. When in full nuptial dress, the male *Bergfink*, as it is called in Sweden, where it is common, is one of the most beautiful of the European birds. The velvet black of the head and back, contrasting with the rufous orange of the lower parts, and the variegated wings, have less the aspect of a native of these northern climes, than of a miniature of one of the *Cassiques* which adorn the American forests. The only representation I know of this plumage, is in Von Wright's 'Svenska Foglar' (Birds of Sweden), published in 1828, at Stockholm.—*F. Holme; C. C. C. Oxford.*

Do Swallows eat the Honey-bee? On the 16th of this month, I observed several swallows mobbed by hive-bees, as hawks and owls occasionally are by smaller birds: they amused themselves by flying close to a range of hives, but I could not see that they devoured any of the bees who appeared to be the assailants. I may add that the same day the swallows appeared to be congregating, as if for migration.—*Charles Horne; Clapham Common, August 27, 1845.*

Remarkable locality for a Woodpigeon's Nest. A woodpigeon's nest has been built two following seasons, close under the library-window, by a frequented gravel walk. On both occasions the cat has killed and eaten the young birds, almost immediately they had left the shell, the old birds surviving.—*Id.*

A young Woodcock shot on Cairn Monairn. On the 19th of this month (August) my companion shot a young woodcock on the top of Cairn Monairn. This we considered an extraordinary occurrence; however, at the distance of some miles from the hills, in a glen under the house, a pair of woodcocks has bred annually.—*Id.*

Ringdoves devouring Gooseberries. I understand that about a fortnight ago a ringdove was shot by the keeper of Lord Torphichen's policies, at Calder House, in the crop of which were found twenty-two full-grown gooseberries. Is this a singular case? I do not recollect hearing of a similar one. The gardens at Calder-house are delightfully situated amongst woods, in which ringdoves abound. Perhaps this may in some measure account for the fact.—*R. D. Duncan; Broughty-ferry Road, August 23, 1845.*

Description of a supposed new Duck. A variety of duck, intermediate in size between the common pochard and the Nyroca, or white-eyed pochard, and apparently a hybrid between those two species, was killed on Rollesby-broad, near Yarmouth, on the 27th of February last. It was observed to be much tamer than some wigeon with which it was in company, and to swim very low in the water. The beak, legs and feet bear a close resemblance in form and size to those of the common pochard. The back and wing-coverts are freckled, and the tips of the feathers on the belly are changing from their original yellowish brown colour, and also assuming a freckled appearance. The eyes are yellowish white, and it is remarkable, that although the bird is decidedly smaller than the common pochard, the eyes, when removed from the head, were found to be much larger than those of the latter bird. The head and neck are of a rich chesnut, which at the lower part of the neck (where the common pochard becomes black) changes to a much darker tint, which extends over the breast and shoulders. The wings nearly resemble those of the white-eyed pochard in colour and markings, but are considerably larger. A feather from the axillary plume has the form of the corresponding feather in the common pochard, but resembles that in the white-eyed pochard in being freckled at the end. The bird is in the possession of Mr.

J. H. Gurney. It proved, on dissection, to be a male; and from the imperfect development of the bony filaments which cross the apertures in the organ of voice, supporting the membrane which covers them, was probably only a bird of the last or the preceding year.—*William R. Fisher*; 13, *Gray's Inn Square*, August 1, 1845.

Domesticated Herring Gulls breeding in a garden. A female herring-gull has for many years inhabited a piece of water in my father's garden. She has long been a favourite from her familiarity and her amusing habits. In the spring she was always very clamorous, and usually attached herself to any odd bird there might happen to be among the other water-fowl, seldom quitting its side. She would often be seen attempting to make a nest, collecting dried tufts of grass &c., and placing them around her. In the autumn of 1841, a pair of young gulls, then in immature plumage, were placed in the pond; our old friend readily acknowledged her congeners, and in the following spring it was observed that the female of the young pair was driven off by the others. These soon proceeded to the construction of a nest: this was found in the stump of an old lilac-bush, and was composed of dead leaves. The female laid three eggs; one young one was hatched, but disappeared the next day. The following year they again built in the same spot, and two young were hatched; one died almost immediately, but the other lived four or five days, and died, apparently from the want of a supply of proper food. This spring, however, we have been more successful. The gulls resorted to their old breeding-quarters, and in the same nest laid three eggs, of which one only was hatched. Much pains was bestowed in keeping up a constant supply of fish, shrimps, crabs &c. for the parent birds. It was difficult, from their retired and watchful habits, to ascertain in what manner they conveyed food to their nestling; and the gardener, who had the care of them, fed it at first himself, by putting small pieces of their food into its beak, but this was not long necessary, for it was soon observed that the parent bird fed the young with food previously swallowed, after the manner of pigeons. It was interesting to observe the watchful care of the old gulls; the utterance of their wild cry made known immediately when any one was approaching their nest, and they would both fly at the intruder with determined boldness. The young bird did not remain many days in the nest, but concealed itself under some brush-wood near, with the female usually at its side. As it grew older, they gradually changed their locality, bringing it round the whole circuit of the pond, always keeping it very much concealed, avoiding taking it into the water, except on one occasion, when they were observed trying to decoy it across to an island; the young one then ventured into the water, but failing in its attempt to mount the banks of the island, it soon returned to the shore, with piteous cries for its parents. It is now a fine handsome bird, fully grown and fledged, but still remains attached to the old gulls, and in a measure dependant upon them.—*Communicated by J. G. Barclay*; *Walthamstow*, August 6, 1845.

Eggs of the Flesh-fly deposited on a living Toad. I observed a toad, about a week ago, in the evening after a shower of rain, crawling across a public road, which apparently had a white mark or patch across its back. On examining it closely, I found this occasioned by a large quantity of the eggs of one of the flesh-flies being deposited on its back. Is this one of the means employed to keep these reptiles in check? I have never heard of it before. The toad seemed quite lively, and was in no way injured.—*Chas. Charnock*; *Holmefield House, near Ferry-bridge*, July 10, 1845.

Note on the Salmon and the Eel. I notice in a late number of 'The Zoologist,' (Zool. 1035), an extract from the Perth Advertiser, respecting salmon. The one mentioned as weighing 21 lbs., when caught *foul* weighed only 9 lbs., at least so I was informed a few days since by Sir Thomas Monteith, a great friend of Lord Glenlyon's, so that in a few months he had more than doubled his weight. As I am a bit of an angler, I will give you an eel-aneecdote, as I find it in my note-book, kept during my stay in the north. When fishing for salmon at the West-boat, Deeside, on the 17th of April, as in the act of throwing my fly, I observed in the water at my feet, scarcely two yards from the bank—it being knee-deep, and as clear as Cairngorum—an eel of about $2\frac{1}{2}$ lbs., which had seized a sea-trout of a little more than 1 lb. by the gills, and made a coil and a half round him. The trout thus embraced was unable to swim, and helplessly rolled over and over, until they reached deep water, and I lost sight of them. The eel seemed to hold fast his grip, and doubtlessly in the end mastered the trout, although fresh from the sea. I might easily by wading have gaffed them both, but I had risen a good salmon on my first cast, and cared more for the salmon than for the other two. I send you the above, as the keeper and all at Durris were much astonished, and declared that they had never heard of such a thing. How could the eel have swallowed such a morsel? Or would he bite it to pieces? — *Charles Horne; Clapham Common, August 27, 1845.*

Leeches found in a Block of Coal. About thirteen days ago, two living leeches were found in a block of coal, in a mine about sixty yards deep, at Birchills, Walsall, Staffordshire. In appearance they were just like the leeches in common use. When put into water, they seemed to enjoy it as their native element, but died in a few days. *Lancaster Gazette, April 26.*

Habits of a species of Spider. I have just returned from a short botanico-horticultural excursion through a considerable portion of the counties of Meath and Westmeath, but am not prepared to trouble you at present with anything relative to those departments of Natural History; my object being to request information, rather than to afford it, in a zoological matter which attracted my attention, and appeared singular at first sight, as well as on further reflection, which may altogether have resulted from my slight knowledge of the habits of spiders. I shall therefore simply detail the occurrence as it happened. When examining a deep spongy bog, which produced a considerable number of rather rare plants, I observed, at the opposite side of a deep pool, a dark oblong cluster depending from the heath, which I knew was not general in such localities, and was consequently induced to make my way to it, when I found the dark object to be composed of a living mass of a small species of spider, specimens of which accompany this. I could not better describe the manner in which they were heaped together, than to compare them to a cluster of bees living, which they resembled in most instances, the mass being equally dense, and having the same peculiar movement, and I should say might be about an inch square, but I can offer no just computation of the numbers it contained, further than you will readily observe, from the small size of the spiders, there must have been some thousands in the dimensions I have stated. After watching their movements for a considerable time, during which they continued in the same crowded state, I stooped to capture them, when they at

once took the alarm, and quickly diverged in every direction through the web; but as soon as I again withdrew my hand, they began to close together, until they became as densely heaped as before. My first impression was, that they might be the young of some species newly hatched, an idea which was quickly dispelled, when the man who accompanied me called out he had found another hive, about forty yards distant, and shortly a third, similarly circumstanced in every way. I had consequently no longer a doubt of their being a distinct species, having the gregarious habit I have attempted to describe, and perhaps well known to you and some others of the able contributors to 'The Zoologist.' My next puzzle was (knowing the spiders to be carnivorous creatures) how so great a mass together could procure food; but although I watched earnestly, expecting to inform myself on this important point, I could not observe them either capturing prey or feeding in any way. Permit me, in conclusion, to ask, is this a well known species? And do they feed on insects?—*D. Moore; Glasnevin, Dublin, August 12, 1845.*

[I believe the spiders to be just hatched from the eggs, having frequently witnessed similar clusters and similar habits, and having always supposed each cluster to be a family. The fact of newly hatched spiders not exhibiting carnivorous propensities I have long known; and their rapid increase in size, without any nutriment that I could detect, is an unquestionable and I believe unexplained phenomenon.—*Edward Newman*].

Assembling of Butterflies. At Burcool, on the 10th of April, 1844, I observed eight, ten and twelve butterflies, of a rather common species (name unknown), assemble on one particular spot on a road, where the sand was knee-deep. It was possibly the moisture that brought them, and although the space occupied by their heads was not larger than a half-crown, yet I could discover no cause. Day after day did they assemble here, although I could never see any flying about the coast or sands, and the place of those which I captured with my finger and thumb (so eager did they seem) was never supplied. If moisture was not the source of attraction, what could have brought them thus to assemble?—*Charles Horne; Clapham Common, Aug. 27, 1845.*

Larva of Acronycta Alni. On the 11th of August, 1844, while collecting in Headley-lane, near Box Hill, a friend (not an entomologist) who had accompanied me, found a larva of *Acronycta Alni* on a hazel-leaf. He handed it to me, observing, "I suppose this is of no use to you, as I never find anything worth having." Of course, the captive received immediate attention, and I provided it with several kinds of food which I found growing about the spot, out of which it selected birch, and continued to feed for about a week, and then spun up. It did not use for this purpose some rotten wood which I had provided, nor did it gnaw the sides of the cage like the *Ceruras*, but formed the cocoon out of the fragments of dried leaves &c. I mention this, because I had been informed that without a supply of rotten wood the insect could not be reared. My apprehensions on this point were, however, set at rest, by the appearance of a splendid female on the 28th of May last.—*G. Bedell; 4, Waterloo Place, Coburg Road, August, 1845.*

Occurrence of Lasiocampa Trifolii near Manchester. I have much pleasure in forwarding to you a paragraph respecting the larva, pupa &c. of *Lasiocampa Trifolii*. In the month of May last I set off for the coast in search of the above larvæ, and after a diligent search of several hours, I succeeded in finding five small larvæ and one

large one, which I thought might be *L. Quercus*, in different stages, as the larvæ of *L. Trifolii* were much lighter coloured than the large one. I put them into a box, with several larvæ of *Dasychira fascelina*, and fed them all upon whitethorn and wild rose, and took no more notice of them. Several fine specimens of *D. fascelina* came out, then a male *L. Quercus* (or *Roboris*, as we used to call it), and lastly, quite unexpectedly, appeared a fine male *L. Trifolii*. When my brother examined the moss on Sunday last, he found another cocoon fixed along with the empty one; I went to look in the evening, and a male specimen of *L. Trifolii* had come out in the interval. The cocoon is much smaller and of a lighter colour than that of *Quercus*, and more oblong than in *Rubi*. The larvæ, when I found them, were concealed under some rag-wort leaves, among the grass, they were all within a few yards of each other. On Monday last I went to try to take the insect on the wing. I did not see any, but found two empty cocoons. I succeeded in taking several fine specimens of *Actebia præcox*, *Agrotis cursoria*, *lineolata* &c., *Miana literosa*, and one male *Leucania litoralis*, in fine condition; and, rather strange to say, I took *Pyralis farinalis*, quite out of its element, hanging on a blade of grass, on a bleak coast. — *Jas. B. Hodgkinson; Dixon St., Hulne, Manchester, August 15, 1845.*

Occurrence of Acronycta Salicis near Preston. I never saw *Acronycta Salicis*, nor yet heard of the name, until very recently, whilst at Preston. My brother had bred a fine specimen this summer; I got the chrysalis upon a stump during the last winter. It appears a distinct insect from *A. Rumicis*, but my limited knowledge, particularly of varieties, prevents me from making any remarks at present. *Emmelesia Blomeri* and *sylvata* have both been very rare this season. *Xerene albicillata* and *plumbata* have been tolerably common. *Phibalapteryx vitalbata*, and other good moths, have been taken here this season.—*Id.*

Capture of Polia occulta in Edinburghshire. I have been remarkably fortunate during the past week in capturing two specimens of that fine moth, *Polia occulta*, which proves to me more than ever the necessity of unwearied assiduity and perseverance on the part of the entomologist desirous of success, as I have now been investigating the Entomology of this locality for about seven years, and never met with the species until this wet unfavourable season. The first specimen—a fine male—I brushed off the foliage in passing a red-currant bush in the garden, in the dusk of the evening of the 11th. The bush was much infested with Aphides, upon the saccharine secretion of which it had been regaling, apparently to such excess as to be unable to use its wings, as it fell to the ground without opening them. The second, which was a female, and rather damaged, I captured on the 13th. It was resting on the trunk of a willow, the grey lichen-covered bark of which it so closely resembled, that none but an entomologist would have discovered it. I could scarcely believe that my visual organs were not deceiving me when I saw another specimen, and without loss of time I proceeded to secure it with great caution. It was very easily taken, however, as it did not attempt to fly. Perceiving that it had not yet deposited its eggs, I thought it might possibly be so obliging as to lay them in my box; nor was I disappointed, for on opening it next day, I found some hundreds attached to the side in an irregular mound, about half an inch in diameter, and an eighth in depth. During the following night it deposited the remainder, in a smaller heap of similar formation; and next morning I killed it with crushed laurel-leaves and fixed it on the setting-board. The eggs were beautifully glossy, and ribbed like those of *Phlogophora meticulosa*, but only about half the size, although the produce of a larger insect. When first depo-

sited they were pale straw-colour, but in the course of three or four days they changed to pale cinereous brown. On the 24th the eggs produced a fine brood of larvæ, which are now feeding on the leaves of the dandelion. — *R. F. Logan; Hawthorn Brae, Duddingston, near Edinburgh, August 26, 1845.*

Capture of Polia occulta in Hyde Park. I found a specimen of this rare moth on the trunk of an oak tree, this morning, in Hyde Park. It had nearly hidden itself between the crevices of the bark. Unfortunately, the specimen is a little wasted, still it will be a very acceptable addition to my collection. It is very singular that I should have taken three of our rarest moths within the smoke of London; namely, *Catocala Fraxini*, *Stauropus Fagi* and *Polia occulta*. Several specimens of *Ægeria Cynipiformis* have also been taken lately in the Park. — *Samuel Stevens; 38, King St., Covent Garden, August 18, 1845.*

Cucullia Lychnitis, (Ramb.) I have annually, for the last three or four seasons, obtained the caterpillars of this rare shark from off the leaves and flowers of the mullein, found in a chalk-pit at Arundel, in Sussex; but until this year have been very unfortunate in breeding them. I have now succeeded in obtaining twelve or thirteen fine specimens; two that I bred this year have remained two years in the pupa state. The larvæ I get about the middle of August, and the perfect insect has appeared at intervals this year from the middle of June up to the present time. The pupæ I keep out of doors in a tub, in rather a warm corner of the garden, and protected from getting too much wet. When at Arundel a fortnight since, I obtained a couple of dozen young caterpillars, but I am sorry to say they have nearly all died in changing their skins. This insect stands in some of the old collections as *Thapsiphaga*, *Ochs.*, but the latter is a totally distinct species, and not, I believe a native of this country.—*Id.*

Parasitism of Chalcidites. In the 'Annals of Natural History,' xiv. 182, and in 'The Zoologist,' 850, I have already mentioned *Pteromalus domesticus** as infesting the pupæ of *Lozotania Xylostearia*, which moth, in the larva state, feeds on the leaves of pear-trees and of peach-trees; it also helps some species of spiders, of *Telephorus* and of *Cimicites*, to destroy *Tortrix viridana*, and it may be often found with the pupæ of that moth, when the leaves in which they are inclosed are unrolled. But it confers much more essential benefits on mankind, by consuming great numbers of *Anobia*, and thus preserving the woodwork of houses, which is gnawn through and through by these mischievous little beetles. In limiting the number of *Tortrices* it is assisted, though but slightly, by a species of *Tachina*, by *Hemiteles areator* (which, with it, I once reared also from the pupa of a *Tinea* named *Astyages nigricella*), and from two other species of *Ichneumonidæ* *Genuini*. It emerges from the moths earlier in the season than from the *Anobia*, perhaps from being more exposed to the summer heat in the former case. It appears during August in large swarms, with the beetles, its victims; it is more slow in its movements than most species of *Pteromalus*, and it lives throughout the year, at least the female may be always found, for I reared from pupæ the only specimens of the male that I have seen. *Hemiteles areator*, and probably also *Hecebolus sulcatus*, *Spathius clavatus*, and a species of *Cryptus*,† lend their aid in diminishing the number of *Anobia*.—*Francis Walker.*

* It appears to be identical with *Pt. deplanatus* (*Nees d'Ess. Hym. Ich. aff. ii. 110*), and consequently the name I have given it is merely a synonym, the other having the priority.

† See Westwood's 'Introduction to Entomology,' ii. 143.

On a new locality for Cossonus Tardii, with an attempt to clear up an apparent inconsistency in its position. The following remarks are drawn up for a twofold purpose. First, to announce the discovery of *Cossonus Tardii* in a totally new locality: and, Secondly, to account for what might appear an inconsistency in the *position* of that locality. Of course, I do not mean an *absolute* inconsistency, — but a *relative* one; inasmuch as, in speaking of locality, no such thing as an “absolute” inconsistency can exist. It is merely inconsistent, at first sight, *with reference to* a previous one mentioned on a former occasion, — namely, that which I found it to inhabit in such great abundance during the whole of last summer. And, first of all, I must state that it is an undoubted decree of the Fates, that, how often soever I wander in the west of England, so sure is *Cossonus Tardii* to be the result of all my captures. I had last year, I believe, the pleasure of introducing it for the first time into the English Fauna, and succeeded in tracing its ravages for three and twenty miles along the southern coast of Devon and Cornwall; but, although collecting diligently for five months in the two counties, I never observed it to wander from this locality, being, so far as I could ascertain, confined exclusively to the highest points of land along the range of the southern shore. Lately, however, a totally new feature, both as regards locality and position, has presented itself to me. Instead of the “high lands of the south,” I found it, during a recent visit at Lynmouth (a little fishing-town on the shores of the Bristol Channel), exclusively peculiar to the *low ones of the north*; — a change certainly considerable, but one which I think may be easily accounted for. Everybody who knows Devonshire is well aware of the great difference of climate which exists between the shores of the English and Bristol Channels, — the temperature of the highest points of the former averaging, in most instances, that which obtains in the lowest and most sheltered valleys of the latter. Which, when once admitted, may explain why, in one case, it should select exclusively the high lands, and, in the other, invariably the low. Regarding it in this light, the change appears reasonable enough, but I confess I was at first rather startled, on arriving at Lynmouth and proceeding to unbark some decayed sycamores in the valley of the Lyn, to find my old friends in such a totally different locality, at least eighty miles from the nearest point of the southern range; and, instead of confining themselves to the old stunted pollards on the highest lands overhanging the sea, now transported to the lowest possible haunts, and inhabiting the once flourishing trees which clothe the banks of that beautiful stream. I think the above observations worthy of notice, first, because I expressed an opinion in a former number that the insect in question was exclusively peculiar to the southern coast, (Zool. 775); and, secondly, because I think it an interesting fact, that (although the insect *be* found in the north as well as the south) the two cases should bear so closely on each other, when the difference of climate is taken into consideration. True it is that the one is the inverse of the other, but then they are strictly reciprocal. Had the the two cases been perfectly analogous, I should, undoubtedly, at first, have been contented with my good luck, and pleased to find them in every respect identical. But, upon maturer consideration, when I placed the circumstances of the one in opposition to those of the other, and sat down in cold blood to examine into each, to combine cause and effect, and endeavour to gratify myself with what I had previously considered not only a curious coincidence, but “a most fortunate bearing-out of my last year’s observations,” — I confess I should have been somewhat staggered when I began for the first time to reflect on the two cases being perfectly coincident, while they existed (to use a mathematical phrase) in “conflicting media.”

Now, assuming (as I think, from observation, we may fairly do) that *Cossonus Tardii* is strictly confined to the warmer parts of Great Britain,—and taking also for granted the fact, that the high parts of the coast of Devonshire facing the Bristol Channel, from their being exposed to the north winds, are much below the average temperature of the rest of Devonshire, and therefore cannot possibly be classed with the “warmer” portions of our island,—I say, if the first of these conditions be true, *Cossonus Tardii* could not exist on the high lands of the north of Devon. And therefore when, having taken the first assumption into consideration, I came round to *this* point of my argument, I should certainly (as before intimated) have been much perplexed how to account for the similarity of the two cases, had that similarity existed. Fortunately, however, *it does not*; for, had I found *Cossonus Tardii* in the north of Devon, as I did in the south, inhabiting exclusively the highest points,—the simple question, “Why an animal, the inhabitant of a warm climate, when placed in a cold one, should fly to the coldest points in preference to the warm?”—is, I confess, a problem which I should have been unable to solve. There is, perhaps, one question which might be asked on the other side, and, inasmuch as I think it is the only one left, it is the last I shall touch upon. It might possibly be suggested, “If *Cossonus Tardii* is strictly peculiar to a warm climate, why, in the south of Devon does it not remain in the valleys instead of ascending the hills?” To which I would reply, that the air of the south of Devon is so exceedingly mild, and *even the highest* ground on the coast always protected from the north winds by *still higher inland* (as, for instance, the coast of Devon is protected, principally, by Dartmoor Forest, and that of Cornwall, by the high range of hills running from north-east to south-west, completely through the county), that I think it questionable whether, in reality, the valleys, although undoubtedly more luxuriant, *are* much warmer than the hills. It should be remembered also, that there nearly every valley has its own stream, which, although it may give increased verdure, would not always, especially in the winter, add to its warmth. So far indeed as my own experience goes, I have always found the hills on the south coast but very slightly colder than the valleys. And, furthermore, the insect may prefer dry situations to damp ones, and consequently may put up with the inconvenience of a slightly cooler temperature in order to avoid the moisture. The case of the northern specimens is apparent. It was indeed an extreme one, when they had to ask themselves the question,—“What shall we do,—shall we endure extreme cold or excessive moisture?” Now we have shown (or rather endeavoured to show) that in “extreme cold” they could not exist; therefore their answer *must* have been unanimous,—“Excessive moisture.” Had indeed the *climate* of the south of Devon been suddenly transported to the north, my own opinion is they would gladly have worked their way upward, as quickly as we can imagine a *Curculio* so sluggish as the *Cossonus* to ascend the sides of an alpine pass. But this did *not* take place. Hence the “universality” of their reply. Thus it will be seen, from the previous remarks, that the captures of *Cossonus Tardii* in 1844 and 1845, although as to local circumstances, at first sight, apparently incongruous, do not in reality militate. Although separated by a distance of nearly ninety miles, they were both strictly maritime;—both found in the greatest profusion and in the same species of tree;—both peculiar to a warm climate;—and both (as I trust the above observations will show) in every respect identical.—*T. Vernon Wollaston*; *Jesus Coll. Cambridge, July 23, 1845.*

Occurrence of Limnæum nigro-piceum in the Isle of Wight. Seeing a note in the ‘*Zoologist*’ (*Zool.* 1043) respecting *Limnæum nigro-piceum*, I beg to inform you

that I took a few duplicates of that species, as also of *Dasytes viridis* and *Haltica rufipes*, in the Isle of Wight last season, which I shall be happy to exchange for other Coleoptera.—*George Guyon*; *Richmond, Surrey, August 4, 1845.*

Tenacity of Life in Curculionidæ. In 'The Zoologist' is a notice of the tenacity of life of the genus *Apion* and other beetles in spirits, (Zool. 1015); I have frequently noticed in killing beetles with scalding water, that if the water was not quite hot, and any of the insects revived, the *Apions* were sure to be the first, and *Ceutorhynchus* generally the next.—*Id.*

Note on the Breeding of Trichius variabilis. When at Windsor-forest three summers back, I met with three of the larvæ of this rare beetle, about a quarter of an inch long, in the trunk of a decayed oak tree. I brought them home with me, and have at last succeeded in breeding one of them. The plan I pursued was to keep the larvæ moist, in a tin in the cellar, and supply them with small bits of the solid parts from a decayed oak in the neighbourhood. It only remained about a month in the pupa state. Unfortunately, the other two died in going through the changes. — *Samuel Stevens*; *King Street, Covent Garden, August 18, 1845.*

Does Rhynchites Betulæ deposit its Eggs in rolled-up Leaves? I never actually caught it in the fact, but certainly under very suspicious circumstances. On the 23rd of last May, in Shambler's Copse, near Cowes, I took specimens from hazels on which the leaves (containing ova deposited singly between their folds) were rolled up in the neatest manner possible. First of all the third leaf from the end of the twig was firmly wrapped round the stem; then the middle leaf above that; and lastly, the upper one was brought round so as to form a cap: the whole was perfectly firm and compact. I imagine it to have been the work of the above insect; first, because I did not find any leaves so rolled up, except on hazels which contained *Rhynchites*: secondly, because I could discover no other insects (no *Apoderi* for instance) about or very near these hazels, capable of it; and thirdly, because on the *fourth* leaf from the end of a hazel-twig, I found *three* *Rhynchites*, a pair *in copulâ*, and another female in advance of the pair; and the three end leaves of the twig in advance of the said female hung down drooping and withered, and rather discoloured and damp, as if moistened by some liquor which I conceive the insect to have the power of exuding in order to cause the leaves to adhere together. Now, though I did not actually see the insects engaged in the operation, yet the situation in which they were found would lead to the surmise that they were the authors of the appearance which I noticed; and this suspicion received further confirmation from my observing the same circumstance at Monkswood, on the 14th of the following month, except that in this instance the plant was a sallow instead of a hazel. Again I found *two* females and *one* male *Rhynchites* together, and the end leaves hung down moistened and discoloured as before, *immediately in advance of the insects.* I know not whether *Rhynchites Betulæ* is in the habit of indulging in a plurality of wives, or whether one of the above females was the nursery-maid preparing the cradle, under a strong impression that it would soon be required. *J. F. Dawson*; *Ventnor, August, 1845.*

Descriptions of the British Species of Bees belonging to the Genera Melecta (Latreille), Epeolus (Latreille), Cœlioxys (Latreille), and Stelis (Panzer). By FREDERICK SMITH, Esq.

THE various species of which these genera are composed, belong to the class termed cuckoo or parasitic bees, and are not therefore furnished with any apparatus for collecting food for their young; having neither pollen-bush beneath the abdomen, nor pollen-plates on the posterior tibiæ.

The genus *Melecta* contains some of the most elegant and beautifully adorned species of bees. In England, as far as my observation has enabled me to determine, we possess only two species; they are both black, more or less varied and spotted with white; they are parasitic upon the two British species of *Anthophora*. I have observed *Melecta punctata* entering the burrows of both species: *Melecta Atropos* (*Newman*) I have hitherto found only entering the burrows of *Anthophora Haworthana*, and that in several situations, but I by no means conclude that it does not also enter those of *A. retusa*. The females of the typical species, *Melecta punctata*, are subject to great variation, being more or less marked and spotted with white; but it is sometimes totally black, with every shade of gradual approach thereto. The males appear less subject to vary in this respect. These variations in colouring have led to the making of several species by various authors, which I shall point out in my synonymy of the species.

Of the genus *Epeolus* we possess only the typical species, the *Apis variegata* of Linnæus, of which there is a specimen preserved in the Linnean cabinet, with the name attached, in the handwriting of that author. It is a male specimen, and that sex has the scutellum invariably black; whereas, in the opposite sex, it has two red spots. This distinguishing difference, which was not known to Mr. Kirby at the time he published his *Monographia*, accounts for the difference observed by that author between his own specimens and that in the Linnean cabinet. The economy of this species rested entirely upon conjecture, as far as I know, until I had the good fortune to find specimens in the cocoons of *Colletes*, about three years ago. I have again, this year, met with them in the same situation. It is a local insect, but may usually be found about the burrows of *Colletes Daviesana*, wherever a colony of this bee is to be met with.

Of the genus *Cœlioxys* I am acquainted with four British species, one of which, *C. Vectis* (*Curtis*), has been met with in the Isle of Wight, where it is abundant; it has also been taken at Little Hampton, in Sussex. I have no satisfactory evidence to prove on what bee it is parasitic, but it has been taken in company with *Megachile maritima*, and probably is parasitic upon it. The typical species, the *Apis conica* of Linnæus, I have bred from the cocoons of *Saropoda bimaculata*, and Mr. Waterhouse has reared it from those of *Megachile circumcincta*.

Mr. Kirby remarks that the males are usually without the additional abdominal segment, and subsequent authors have commented upon this apparent peculiarity; but on the careful examination of recent specimens, it will be found that they have a seventh segment, which is concealed, but easily drawn out. The examination of dried specimens would lead to the incorrect inference mentioned above.

Of the genus *Stelis*, two species have been discovered since the publication of Mr. Kirby's Monograph; and also the males of the two described by him. In June, 1839, Mr. Thwaites bred a small species of *Stelis* from a bramble-stick. It appears to be the *S. minuta* described in the 'Encyclopédie Méthodique,' and also by St. Fargeau: the specimen bred was a male. The bramble-stick out of which the *Stelis* came, was procured from a locality where *Osmia leucomelana* is abundant, so that the probability is, that it is parasitic upon that insect. I recently captured a small *Stelis* in Hampshire, at a spot where the same *Osmia* is abundant, and which I have no doubt is the male of an insect previously described by me in this work (Zool. 261) as a new species, also captured where *Osmia leucomelana* is abundant. It is distinct from *S. minuta*, being larger, and more maculated with white. I have on several occasions observed *Stelis phœoptera* enter the burrows of *Osmia hirta*, and also of *O. cærulescens*. None of the species are abundant, specimens being only occasionally met with.

It will be observed that of those species which are parasitic upon solitary bees, the males and females very closely resemble each other, and differ little, or not at all, as regards either size or colouring; as in *Nomada*, *Melecta*, and the other genera here described. But the discrepancy between the parasite and the bee is very great; as in *Epeolus* and *Colletes*, *Nomada* and the various species of *Andrena*: the greatest resemblance obtains between *Osmia* and its parasite *Stelis*, still, they are abundantly distinct. The history of this parasitic connexion is still incomplete: it remains to be observed at what time the egg or eggs of the parasite are deposited, and whether the bee

ever deposits her eggs in cells preoccupied by those of a parasite. I am led to believe that she does. I know from observation that *Epipone spinipes* deposits in the same cell in which *Chrysis bidentata* has previously done so. In the instance referred to, the larvæ of the *Chrysis*, three in number, devoured all the caterpillars stored up, and I subsequently detected the grub of the wasp escaping from the egg. It dried up, the food being eaten by the larvæ of *Chrysis*, and I have little doubt such is also the case with the eggs of bees, but this wants further investigation.

Genus. — *MELECTA*, *Latreille*, *St. Fargeau*.
Apis, Panzer, Kirby. *Centris*, Fab.

Three submarginal cells. Maxillary palpi five-jointed.

Sp. 1. *MELECTA PUNCTATA*.

Male. — *Andrena armata*, Panzer. *Melecta Alecto*, Newman.

Female. — Length $6\frac{1}{2}$ —7 lines. Black. Head beneath and the labrum clothed with black, and the face with cinereous pubescence. The thorax anteriorly, and the metathorax laterally, also clothed with similar pubescence. Scutellum bidentate, clothed with black hairs. Tegulæ black. The wings subhyaline, their margins fuscous. Legs black; the intermediate and posterior tibiæ have a white patch at their base externally. Abdomen; the basal segment has a thin fringe of cinereous hair, forming laterally distinct patches, a lateral patch on the second segment, with sometimes a round spot within, the third and fourth have each a lateral round spot within the margin. The cinereous pubescence in very recent specimens will be fusco-cinereous. This is the *Melecta Clotho* of Newman.

Var. 1. *Melecta Megara*, Newman. *Melecta nigra*, St. Fargeau? Black: a few fusco-cinereous hairs on the face, and on the vertex posteriorly; a similar pubescence on the thorax anteriorly, and on the metathorax laterally, also an obscure patch of similar pubescence on the intermediate and posterior tibiæ at their base; the abdomen has a cinereous patch on the first and second segments laterally, and the third and fourth have a minute spot within their margin.

Var. 2. *Melecta Tisiphone*, Newman. *Melecta aterrima*, St. Fargeau? Black: a few indistinct fuscous hairs on the metathorax laterally, also on the first, and sometimes on the second segment of the abdomen laterally, with two minute cinereous spots on the third segment, frequently obliterated.

Male.—Length 6—6½ lines. Black. The head has the face densely and the vertex thinly clothed with cinereous hair. Thorax clothed with cinereous hair. Scutellum bidentate, with black hair. The intermediate tibiæ outside, and the posterior at their extreme base, have a cinereous patch. Abdomen, the basal margin of the first segment thinly clothed with cinereous hair, a patch of same colour at the lateral margins of this and the following; and the third and fourth segments have two minute white spots within their margins. In rare instances the fifth segment has also two minute spots. The cinereous colouring is fusco-cinereous in very recent specimens.

There can be little or no doubt of this being the true *Apis punctata* of Fabricius, and it is universally considered to be so. Any other species of the genus with which I am acquainted, possesses such discriminating marks of difference, that Fabricius must have pointed them out; the following species comes perhaps the nearest to it, but the spots on the abdomen are square instead of round, and easily distinguished.

That the varieties described constitute but one species, I have not a doubt, having found not only those, but intermediate shades of variety, in the nests of *Anthophora retusa*, I have a specimen totally black. In digging down a bank containing the nests, I was surprised at the great numbers of perfect insects which I found dead in unopened cells, both of *Anthophora* and *Melecta*; this was early in June, when the insects were abundant. I have since examined other colonies with similar results.

Sp. 2. MELECTA ATROPOS, *Newman*.

Female.—Length, 6 lines. Intensely black and shining. The clypeus clothed with silvery white, and the vertex with cinereous pubescence. Basal joint of the antennæ fringed with silvery white hair. Thorax closed anteriorly with cinereous pubescence. Scutellum bidentate, black. The metathorax has a few silvery hairs at the lateral margins, and all the tibiæ have an external white patch. Abdomen; the first segment has a silvery fringe upon its basal margin, forming patches laterally, the second, third and fourth segments have on each side an elongate quadrate white spot. This is the *Melecta Lachesis* of Newman.

Male.—Length 5½—6 lines. Shining black and variegated exactly as in the female, with the addition of a silvery fringe on the anterior and intermediate femora, and an additional pair of white spots on the

fifth segment of the abdomen. This sex is the *Melecta Atropos* of Newman.

This is an extremely beautiful species. It is very local: some years ago I found the males abundant near the telegraph in Coombwood. They were in company with *Anthophora Haworthana*, of which insect there was a large colony. Since that time I have only occasionally taken a specimen: I took one this season in Hants, in June. There is a fine series in the cabinet of the Entomological Club. A specimen in the collection of the Entomological Society, was received from M. Passerini of Florence, and named *Melecta notata*, I think of Illiger, but I have not been able to find his description.

Genus. — *EPEOLUS*, *Latreille*; *Jurine*, *St. Fargeau*.
Nomada, Fabricius, Panzer. *Apis*, Linnæus, Kirby.

Three submarginal cells. Maxillary palpi one-jointed.

EPEOLUS VARIEGATUS, *Latreille*.

Female. — Length, $3\frac{1}{2}$ —4 lines. Black. The face clothed with silvery hair. Anterior portion of the labrum and the mandibles ferruginous. The third joint of the antennæ ferruginous beneath, the rest piceous. Thorax, the collar clothed with a fine yellow pubescence, two lines on the prothorax, another from the collar to the tegulæ, and a round spot behind them, reddish yellow; a large patch of white pubescence beneath the wings, and also more or less upon the metathorax laterally. The scutellum red, and on each side of it an obtuse tooth, usually red at the tip. Anterior femora above, and the intermediate and posterior ones black. Abdomen, at the base and on the margin of the first segment an interrupted white fascia, at the margins of the second, third and fourth segments two ovate maculæ, those on the third generally united, a single one on the fifth, and a silvery spot at the apex of the sixth; the abdomen beneath is dark piceous, and the three apical segments have a thin white pubescence.

Male. — Length, $2\frac{3}{4}$ — $3\frac{1}{2}$ lines. This sex only differs from the female in having the markings more nearly pure white, the antennæ entirely black, the scutellum black, and the intermediate and posterior tibiæ have a dark stain within; and in the fasciæ at the base of the first segment being frequently united.

This beautiful little bee, the only one of the genus hitherto discovered in England, is a local insect, and as far as my observation has enabled me to determine, appears to be parasitic only upon the Col-

letes *Daviesana* of Kirby's MSS. I have found it in the nests of that insect in Hampshire, and in several localities in Kent, viz., Bexley-heath, Darent-wood, Charlton and Erith; also at Weybridge in Surrey. It appears early in July, and, for a bee, is remarkably indolent. The males are fond of taking their repose in a species of *Leontodon*, where they appear to enjoy themselves in a state of luxurious intoxication. The females are not quite so inactive as the males, but both sexes may easily be taken with the fingers.

Genus. — *CÆLIOXYS*, *Latreille*, *St. Fargeau*.

Anthophora, Fab. *Anthidium*, Panzer. *Apis*, Linn., Oliv., Kirby.

Two submarginal cells. Maxillary palpi three-jointed.

Sp. 1. *CÆLIOXYS QUADRIDENTATA*.

Female.—Length, 4—5½ lines. Black, coarsely and closely punctured on the head and thorax. The face below the antennæ clothed with a pale yellow pubescence, which is very short and fine on the clypeus. Disk of the thorax naked, the sides and beneath clothed with a pale yellow pubescence. The scutellum bidentate. The anterior femora are fringed behind with pale hairs, the calcaria rufous. Abdomen conical, depressed above, with deep scattered punctures, a thin lateral fringe of pale hair at the base, there is also an angular patch of white hair on each side of the basal segment, the rest of the segments have a fringe of the same colour on their margins, sometimes the first and second interrupted.

Male.—Length, 3½—5 lines. Black. Head and thorax coarsely and closely punctured. The face clothed with bright yellow hair. The sides of the thorax clothed with a pale yellow pubescence, beneath with hoary pubescence. The anterior legs have a fringe of the same colour on their femora, and their coxæ are armed with an obtuse spine. The abdomen has a thin pale fringe on each side at the base, and also an angular patch of white, the second, third and fourth segments have a continuous marginal fascia of white, sometimes interrupted, the fifth segment has a minute tooth at its extreme lateral margins, the sixth is quadridentate, the lateral teeth are small and acute, the inner pair stout and bidentate at their apex.

The yellow pubescence turns to white in long-disclosed specimens, and the marginal fasciæ are nearly obliterated.

The male is the *Apis quadridentata* of Linnæus; his own specimen is still preserved in the Linnean cabinet.

This species, as I have already observed, is parasitic upon Saropoda and Megachile, and this year I observed it plentiful about the burrows of a colony of Anthophora, which they were entering apparently upon the most friendly terms with the rightful owners. The *Cœlixys inermis* of Kirby is an injured specimen of the male of this insect, the thorax having been crushed, and the spines hidden by the metathorax: the original specimen still exists in the cabinet of the Entomological Society.

Sp. 2. *CÆLIOXYS VECTIS*, *Curtis*.

Female. — Length, 6—7 lines. Black, coarsely punctured on the head and thorax. Head as wide as the thorax. Clypeus covered with a very short fine cinereous pubescence, a longer pale pubescence above extending to the base of the antennæ; a patch of white pubescence beneath the wings. Scutellum bidentate. The anterior femora have a white patch behind, and the coxæ have an obtuse tooth; the posterior trochanters and femora have a short fringe behind of pale yellowish hairs. Abdomen conical, the base of the fourth and fifth segments and the whole of the sixth finely punctured, the other portions with deep scattered punctures, the basal segment has a white pubescent spot on each side, and the four following have similarly coloured lateral spots, pointed within; beneath, the first segment has a white patch in the centre of the margin, and the rest a white marginal fringe.

Male. — Length, $5\frac{1}{2}$ —6 lines. Black. Head and thorax coarsely punctured. Face covered with hoary pubescence, very thinly scattered on the vertex, and also upon the disk of the thorax; the pubescence is thicker on the sides and beneath. The anterior coxæ are toothed, and the scutellum is bidentate. Abdomen with deep punctures, the white patches as in the female, a minute tooth at the extreme lateral margins of the fifth segment, another at the base of the sixth, with two stout ones at the apex, which are bidentate at the tips, the upper tooth minute.

This species is local. Mr. Curtis first took it in the Isle of Wight. I have captured a single specimen in Hampshire; and my friend Mr. S. Stevens this year took it at Little Hampton, Sussex.

Sp. 3. *CÆLIOXYS RUFESCENS*, *Serv.*, *St. Fargeau*?

Female. — Length, 6—7 lines. Black. Head and thorax closely punctured: the face, and the thorax on the sides and beneath clothed with a reddish yellow pubescence. The anterior femora have a fringe behind of the same colour. Scutellum bidentate. Abdomen finely

punctured, conical, not depressed above; a lateral macula on the margin of the first segment, the three following with a continuous marginal fascia of reddish yellow hair; the margins beneath have a similar fascia. The fasciæ above are sometimes interrupted, and in long-disclosed specimens the pubescence is nearly white.

Male.—Length, 6—7 lines. Black. The face and sides of the thorax clothed with a reddish yellow pubescence, which also thinly clothes the coxæ and femora; the anterior coxæ are dentate. Scutellum bidentate. The abdomen convex, an angular macula at the lateral margins of the first segment, and the three following have a marginal fascia of reddish yellow pubescence; a minute tooth at the extreme lateral margins of the fifth segment, a larger tooth at the base of the sixth, with two stout ones at the apex, bidentate at their tips.

This species very closely resembles *C. conica*, but it is much larger, and the abdomen is convex above and beneath, whereas in *C. conica* it is more or less depressed above. I observed this species entering the burrows of *Anthophora retusa* this season, in August.

Sp. 4. *CÆLIOXYS UMBRINA*, *Smith*.

Male.—Length, $4\frac{3}{4}$ lines. Dark brown. Face covered with longish pale fulvous hair: the cheeks and anterior tibiæ clothed with white pubescence; the anterior coxæ bidentate. The disk of the thorax is fulvous and the sides paler. Scutellum bidentate. Abdomen; the base considerably attenuated, the first segment has a fringe of pale brown hair, the four following have a continuous fascia of the same colour, the sixth segment has an acute tooth at its base laterally, and the two stout ones which arm the apex are bidentate at their tips.

I captured the insect here described about six years ago, in Hampshire, and have not yet succeeded in meeting with more specimens. I have taken a female *Cælioxys* at the same spot, which probably is the same species. It differs from *C. conica* in having the margins of the abdominal segments much depressed, and its scutellum is not dentate; these are strong characters, but I have pointed out the particulars in which it differs from *C. conica*, and hope to satisfy myself by further observation if it be the female of *umbrina* or not. I do not feel inclined to raise it to a distinct species. The male I bred from the cocoons of *Saropoda bimaculata*.

Genus. — *STELIS*, *Latreille*, *Panzer*, *Serville*. *St. Fargeau*.
Megilla, *Fab.* *Trachusa*, *Jurine.* *Apis*, *Kirby*.

Two submarginal cells. Maxillary palpi two-jointed.

Sp. 1. *STELIS ATERRIMA*, *Latreille*.

Female. — Length 4 lines. Black, closely punctured. A very thin cinereous pubescence on the head and thorax. A short tooth on each side of the scutellum, which is subemarginate. Apical margin of the wings fuscous, darkest in the marginal cell. Abdomen convex, margins of the segments piceous, the terminal segment somewhat angular.

Male. — Length, 3—4 lines. Black, closely punctured. The face thinly clothed with hoary pubescence, as well as the sides of the thorax and a few scattered hairs on the metathorax. The scutellum has an obtuse tooth on each side. The wings have their margins clouded, darkest in the marginal cell. Abdomen, the margins of the first four segments piceous, the seventh rounded, entire.

I am not aware that the male of this species has been previously described; it was not known to Mr. Kirby, nor is it described by St. Fargeau. This is a scarce insect. I have met with the male at Darent, in Hampshire and at Weybridge. I only once took the female, at Birch Wood, Kent.

Sp. 2. *STELIS PHCEOPTERA*, *Latreille*.

Female.—Length, 4—4½ lines. Black. The face has a little hoary pubescence along the margin of the eyes, which also thinly clothes the sides of the thorax. Scutellum rotundate, not toothed. Wings fuscous, with a darker cloud on their margins, darkest in the marginal cell. The legs have a little hoary pubescence, the calcaria testaceous and claws ferruginous. The margins of the abdominal segments have a little hoary pubescence; the abdomen is convex above, slightly incurved, and the apical segments acute.

Male.—Length, 3—4 lines. Black, punctured, clothed with a very thin hoary pubescence: closely resembling the female. The seventh segment entire.

This is a scarce insect. I have only found it in one locality, viz., in the Battersea fields, about an old outhouse, entering the burrows of *Osmia hirta* in the old posts. I have observed that it frequents the flowers of the common mallow.

Sp. 3. STELIS OCTOMACULATA, *Smith.*

Female.—Length, 3 lines. Black. Head and thorax closely punctured, a few silvery hairs on the face. Wings subfuscous, the margins clouded. Legs beneath with a thin white pubescence, the tarsi ferruginous. Abdomen rather deeply punctured, the first segment has two ovate cream-coloured spots placed laterally, the second, third and fourth have lateral oblong streaks of the same colour, acute within.

Male.—Length, $2\frac{1}{4}$ lines. Black, punctate. The face has a little hoary pubescence, and a few hairs of the same colour are thinly scattered on the thorax. Scutellum rotundate. Abdomen, the first and second segments have an oval macula at their lateral margins, the third an ovate macula, with a thin short line running from it inwards, the fourth, two smaller maculæ on each side, the fifth, a single minute one beneath the two former, the sixth and seventh segments are immaculate; the terminal one entire.

Two specimens of the female of this species were captured by a relation, at a spot where *Osmia leucomelana* is found. This season, at the same locality in Hampshire, I took the male here described. I have no hesitation in placing them together, as there is, in addition to time and place of capture, a very strong affinity in general resemblance. The three specimens mentioned are, I believe, all that have been met with of this species.

Sp. 4. STELIS MINUTA, *Serv., St. Fargeau.*

Male.—Length, 3 lines. Black, finely punctured. Head subquadrate. Face clothed with a thin hoary pubescence, as well as the sides of the thorax and beneath. Wings slightly fuscous. Abdomen, the second and third segments have on each side a cream-coloured macula, the terminal segment is entire.

This species has hitherto remained unique in Mr. Thwaites' collection: it differs from the male of *S. octomaculata* in the form of the head, and in having only four maculæ on the abdomen. *St. Fargeau* has described the female; the abdomen, he says, has an ovate macula on the three first segments, otherwise resembling the male.

FREDERICK SMITH.

High Street, Newington Butts,
September, 1845.

Bees feeding on Gooseberries. Having stepped amongst a bed of mixed gooseberry plants, my attention was directed to the spoiling state in which I found the fruit,—scarcely a single gooseberry being sound and perfect, the riper fruit altogether gone beyond the least use, and that approaching ripeness presenting the appearance of being just attacked by birds, or even wasps. At first, indeed, I conceived that it could but be the work of a number of the small, garden-haunting, feathered tribes, but on closer inspection I saw how the destruction arose, and was not a little surprised at the novelty, to me, of seeing a fair proportion of a swarm of bees thronging the gooseberry plants, as intently as they may be observed culling their stores from a bed of sweet thyme, or hovering over a profusion of honeysuckle and meadow-sweet. A single gooseberry appeared to be perforated, and the whole of its interior disposed of, in a very short space of time indeed. And the mode in which the bees effected their attack, I should say, was to make first an incision in the side of the fruit, and gradually continue to deepen it, until one whole side was perforated and laid open; and the fruit presented a similar aspect to a greengage taken possession of by wasps, and having nothing left but the exterior covering or rind. The riper the fruit, of course the more apparent was the attack, and if the bees had any preference as to the description or sort of the fruit, the larger and red gooseberries seemed to possess the greatest attraction. On enquiry of the gardener, I learned that this, which was so novel to me in the history of bees, was not by any means so to him; but he added that it is not a thing of every year's occurrence, and as far as observation and report extend, is to be explained by the fact of there not having been sufficient sun during the recent season to advance the flowers and fruits to maturity in the usual manner. He observed also, that he had previously been aware that bees will go to gooseberries for food, whenever they are straitened to obtain a sufficient supply; and this is at once established by the very limited stock of honey which I understand the hives have this season contained. Currants are too acid for them, and in gooseberries they seem to find an extract serving their purposes of labour, and aiding their existence and support. — *Wm. Beare*; 5, *Southwell St., Bristol, September 19, 1845.*

Wasps frequenting Fir-trees. I should be much obliged if one of your entomological correspondents would explain what is the attraction which brings wasps to the boughs of the silver fir. Both last year and this I have observed a very great number hovering immediately under the boughs. I have not seen them collect anything from the trees, nor have I observed them on other firs, though they may very likely be there, as my opportunities of observation are more with regard to that tree than any other of the genus. The tree is full of them, and the noise is like that of a well-stocked apiary.—*H. T. Frere*; *Roydon, September 3, 1845.*

A Nest of the Tree Wasp was taken on the branch of a holly tree. It was composed of three or four moveable spheres, one within the other, in the interior of which was a comb, containing thirty perfect cells, with two rows in progress. The entrance, which was below, could be closed at pleasure by a rotation of the inner ball, which the insect frequently accomplished whilst in the house, before an open window, while passing in and out with three young ones.—*P. W. L. Ross*; *Broadway House, Topsham, Devon.*

Capture of Hymenopterous Insects, and Description of a new Astarta. A record of the following captures will, I trust, prove useful to some future collector of Hymenoptera, since it will point out a locality where some of the most rare fossorial species are to be met with. I think it probable that such a day's collecting never before

occurred to any one in this country ; for my own part, I can only say that it far transcends any success I have met with on previous occasions. The captures were made on the 22nd of August, the continuation of wet weather which had preceded that date had no doubt retarded the appearance of some species, particularly the males of them, as I have met with some more than a month earlier. *Mutilla ephippium*, 4. *Myrmosa melanocephala*, abundant. *Tengyra Sanvitali*, 2. *Methoca ichneumonides*, 4. *Pompilus pulcher*, abundant. *Pompilus affinis*, 2. *Ceropales variegata*, 1 female. *Aporus bicolor*, 1. *Tachytes pompiliformis*, 4. *Miscophus bicolor*, 2 males and 3 females. *Astata*, a new species, 1. *Cerceris labiata*, 4. *Andrena fuscipes*, abundant. *Andrena argentipes*, abundant. *Dasyпода Swammerdamella*, 2. *Panurgus ursinus* and *P. calcaratus*, abundant. *Nomada baccata*, abundant. *Saropoda bimaculata* and *S. vulpina*. I do not mention species of more common occurrence, as I consider the above sufficient to prove that Weybridge is one of the best localities for Hymenoptera hitherto discovered. *Tengyra*, or the male of *Methoca*, I found skimming over a bank where I captured the female. *Ceropales variegata* I brushed off the purple heath ; I captured a male in the same manner last autumn. *Miscophus bicolor* I captured with its prey, a small white spider. *Cerceris labiata* I observed entering its burrows ; it appears to be a much more solitary species than any other of the genus, for although I have several times taken it, I never discovered a colony. It occurs in Hampshire also. The capture of a new species of *Astata* is undoubtedly a great acquisition to the British Fauna. The only species previously known to inhabit Britain—the *Astata boops*—is a very local species ; although abundant on Hampstead-heath, in other localities, as Coomb-wood in Surrey, and Hawley, Hants, I have only met with it sparingly. I have not observed it at Weybridge. The new species I will first describe, and then point out some of its points of difference from *A. boops*.

Astata Jaculator. — *Female*. Length, 3 lines. Black. The head very smooth and shining, a few distant minute punctures on the face, and an impressed line midway between the anterior stemma and the base of the antennæ. Mandibles rufo-piceous. The thorax having the disk, and also the scutellum, smooth and shining, with a few remote punctures towards the collar ; a short impressed line on each side parallel with the tegulæ ; the metathorax has an opaque space, shaped like a horse-shoe, exceedingly closely and finely punctured, inclosed by a deeply impressed line. The anterior wings are slightly fuscous, palest towards the apical margin. Legs dark rufo-piceous ; the anterior tibiæ pale ferruginous in front ; all the tarsi rufo-piceous ; the anterior tarsi are ciliated on the outside, and the intermediate and posterior tibiæ slightly spinose. The abdomen has the first and second segments, and the third at the base, red. It will be seen that in general colouring this species resembles *Astata boops*, but in sculpture it is widely distinct. It is not more than half the size of the smallest of that species ; its face is not deeply punctate, nor is the thorax in front ; it has an inclosed patch on the metathorax delicately punctate, which is not the case in the other species, the whole portion being rugose. The head and thorax in *A. boops* are very pubescent, but the new species is entirely destitute of hair.

I have another rarity to describe, namely, a hermaphrodite specimen of *Nomada baccata*, which is probably the first instance discovered of hermaphroditism in this genus. This remarkable creature has the sexes thus divided : head black, as in the male ; left antenna male, right female ; the left side of the face silvery as in the male, the right side naked ; left mandible yellow, the other red ; the thorax coloured as in the female ; the abdomen swollen on the right side, female, terminal segment pointed,

as in the male, on one side. — *Frederick Smith* ; 5, *High St., Newington Butts, September, 1845.*

Parasitism of Chalcidites. The larvæ of *Yponomeuta Evonymella* live in society, and often devour all the leaves of the trees which they infest. In the beginning of July a considerable number of the moths emerged from some nests which I had received, and they were accompanied by three *Ichneumon* flies (belonging to two species of the *Ichneumones genuini*), and by one *Ceraphron* (*Megaspilus*, *Westwood*). A few days sufficed for the appearance of all these insects, and about a month afterwards numerous specimens of a *Tetrastichus* (*Haliday*) were disclosed. I will conclude this note with a short description of its characters, and give the name in the December number.

Tetrastichus ———. Green, with a slight brassy tinge: antennæ of the male fulvous, slightly clavate, not hairy, hardly half the length of the body: antennæ of the female piceous, subclavate, not half the length of the body; 1st joint green: thorax oval, convex: mesothorax with a furrow down the disk of its scutum, and a furrow on each side of its scutellum: abdomen of the male almost linear, nearly flat, rather shorter and narrower than the thorax: abdomen of the female elliptical, rather longer than the thorax, depressed above, keeled beneath, pointed at the tip; its disk cupreous: legs of the male yellow; coxæ and base of the thighs green; tips of the tarsi fuscous: legs of the female like those of the male, except the thighs, which are nearly all green, and the tibiæ, which are encircled by a broad fuscous band, sometimes occupying nearly their whole length: wings limpid; nervures fulvous; ulna nearly as long as the humerus; radius extremely short; cubitus not more than one third the length of the ulna; stigma very small. Length of the body $\frac{3}{4}$ — $1\frac{1}{4}$ line; expansion of the wings 1 — $1\frac{1}{2}$ line.—*Francis Walker.*

Long-eared Bat flying in the sunshine. I once took *Plecotus auritus* in a bright sunshine at noon, hawking for prey, in my garden. This seems rather a common occurrence, from the various notices in the 'Zoologist,' (see *Zool.* 6, 35, 75, 212, 343). *F. W. L. Ross*; *Broadway House, Topsham, Devon.*

Hearing of Animals. Mr. Wolley, in his paper entitled "Observations on the Nodule," says, "This subject of the different capabilities of ears is a highly interesting one," (*Zool.* 953). It is, indeed, and one which, though myself very little of a naturalist, I have often thought on with pleasure. You shall see one man unable to distinguish between the "tonguing" of a dog when on scent of game, and his warning bark to strangers; while another man will tell you, by the tone of his dog, the game he is upon. One man will hear *sounds* spoken from a distance, but will not be able to distinguish what is said; another will hear what is said, but be quite at a loss to tell from what quarter the sound proceeded: while a third will both hear the sound, and know from whence it came, but will not recognize the voice, though it be that of a well known friend. This I call the different *kind* of capabilities. May we not then reasonably suppose, that the difference being so great in this respect, even among ourselves, it is still greater, if not perfectly distinct, in different species? I could never look, with half the pleasure I do now, on a band of evening gnats, did I not suppose they had some means of communicating to each other their wishes and feelings, their pains and pleasures, by sounds perhaps "highly stridulous," or what not, but too subtle for our ears. The "silent snail" has become a proverb, but who has not heard

them, on being touched, emit a sound, something between a squeak and a hiss, a cry, no doubt, of astonishment or defiance. And I have no doubt they have a power among themselves of expressing their approbation of a cabbage or their horror of a gardener, by *sounds*, imperceptible to human ears, but clear and distinct to the senses of the snail. Why then is Mr. W. so anxious to assign one meaning, and one only, to the cry of the noctule? May it not, by cadence and intonation unperceived by us, have each of the meanings assigned to it by Mr. W.? Yes, and many more, with the exception, I should say, of perceiving its position by the "echo," in which case its cry would be heard only when flying low, and not *only* when flying high, as supposed by Mr. Wolley, when, there being nothing to impede its flight, it would require no such warning. To imagine different notes in a sound which to us appears the same, is, I allow, more difficult than to imagine a sound which to us is perfectly inaudible, yet when we know to exist in some ears an obtuseness so great as I have mentioned, we may easily imagine it increased until the cadence is lost altogether, and the sense of sound alone remains.—*Frederick Manby*; 12, *Darnford St., Plymouth*.

On the Dingo, as a variety of the common Dog, &c. (see Zool. 1097). Perhaps you would excuse my troubling you with a few notes on Dr. Hodgkin's essay on the dog. There seems to be a family likeness between the dingo and the class of dogs called *Spitz*. There is the same wolf-like head and close woolly fur. They can hardly be classed positively under the same type, as the difference in the carriage of the tail will distinguish them, but they seem to be nearly allied; besides, there is a similarity of scent. Dr. Hodgkin mentions the attraction of a dingo bitch for foxes; I have heard of a Chinese dog (one of the *Spitzes*) being chased by foxhounds. Dr. Hodgkin does not suggest the original stock of the spaniel. Perhaps the breed is derived from such a type as the Yarmouth dog, a remarkably well distinguished variety, crossed with the various hounds, to give greater power of scent, in which the Yarmouth dogs are deficient. The true pointer I take to be more nearly allied to the bull-dog, as the Spanish pointer, which is the original stock, has been crossed with the various hounds to produce the dogs most usually employed, which would give them the connexion with the hound which Dr. Hodgkin remarks, while the original stock, in the shape of the head, the fineness of the coat and tail, approaches more nearly to the bull-dog, as well as in the temper. Surely the more northern breeds of shepherd's dog have something of the *Spitz* breed; witness their wild-looking head, their woolly coat and occasionally curled tail: perhaps they are the connexion between this and the greyhound type. Between the greyhound and the bulldog there seem to be many resemblances, especially in the tucked-up shape of the waist; but with regard to the colour, the brindled greyhounds are *said* to be derived from Lord Rivers' stock, which were crossed with the bulldog, while I never remember seeing a blue bulldog, which is not an uncommon colour with greyhounds. Their tempers are very different: while the bulldog is usually sulky, the greyhound is perhaps more than any other dog fond of being caressed and fondled; this may be partly owing to the difference in education. Dr. Hodgkin derives the Skye terrier from the admixture of the *Spitz* and some small terrier; very likely; but what is the small terrier from which it is descended? Is it from the English terrier? Would the cross between a breed with close harsh hair like this, and the wool of the *Spitz*, produce a wiry coat like that of the Scotch terriers? In this case, the usual breed of Scotch terriers would be more nearly allied to the English dog than the Skye, whose coat is more like that of the *Spitz*. In conclusion, I am sure all will feel grateful to Dr. Hodgkin for breaking into a subject so intricate and little understood as the

history of *varieties*; and hope that this may be a prelude to a more intimate investigation of this most difficult subject.—*H. T. Frere; Aylsham, Norfolk, October 3, 1845.*

The two Foxes. “He (the narrator) was one day in the fields, near a stream where several geese were swimming. Presently, he observed one disappear under the water, with a sudden jerk. While he looked for her to rise again, he saw a fox emerge from the water, and trot off to the woods with the unfortunate goose in his mouth. He chanced to go in a direction where it was easy for the man to watch his movements. He carried his burden to a recess under an overhanging rock. Here he scratched away a mass of dry leaves, scooped a hole, hid his treasure within, and covered it up very carefully. Then off he went to the stream again, entered some distance behind the flock of geese, and floated noiselessly along, with merely the tip of his nose visible above the surface. But this time he was not so fortunate in his manœuvres. The geese, by some accident, took the alarm, and flew away with loud cackling. The fox finding himself defeated, walked off in a direction opposite to the place where his victim was buried. The man went to the hole, uncovered it, put the goose in his basket, replaced the leaves carefully, and stood patiently at a distance, to watch further proceedings. The sly thief was soon seen returning with another fox, that he had invited to dine with him. They trotted along right merrily, swinging their tails, snuffing the air, and smacking their lips, in anticipation of a rich repast. When they arrived under the rock, Reynard eagerly scratched away the leaves; but lo, his dinner had disappeared! He looked at his companion, and plainly saw by his countenance, that he more than misdoubted whether any goose was ever there, as pretended. He evidently considered his friend’s hospitality a sham, and himself insulted. His contemptuous expression was more than the mortified fox could bear. Though conscious of generous intentions, he felt that all assurances to that effect would be regarded as lies. Appearances were certainly very much against him; for his tail slunk between his legs, and he held his head down, looking sideways, with a sneaking glance at his disappointed companion. Indignant at what he supposed to be an attempt to get up a character for generosity on false pretences, the offended guest seized his unfortunate host, and cuffed him most unmercifully. Poor Reynard bore the infliction with the utmost patience, and sneaked off, as if conscious that he had received no more than might naturally be expected, under the circumstances.” — *Philadelphia Friend.*

On Cattle mouthing Bones. Having read two accounts in ‘The Zoologist’ of a singular act performed by a cow and sheep (Zool. 1048 and 1105), I am induced to trouble you with a few lines, stating the result of my observation. In Australia, where the cattle are allowed to feed up to the very doors of our huts, there is a much better opportunity of studying their habits than in this country, where the pastures are more or less removed from the houses. As but few scavengers’ carts are to be met with in the wilds of Australia, to remove bones and other refuse matter from the various stations, it is the practice there to throw all such rubbish in every direction. I have, from this circumstance, at least a hundred times seen the cattle and horses mouthing the large beef and mutton bones, those that were slightly decomposed evidently being preferred,—(query, because they were softer?). I always supposed it was done for the sake of their *earthy salts*. All animals, as far as I have had an opportunity of observing (horses, cattle, sheep, pigs, dogs and hares), having a decided *penchant* for salts. The infrequency of cases similar to those recorded in ‘The Zoologist,’ no doubt arises from the fact that bones are not generally found in pasture lands. In Amboyna, the cattle are daily driven to the sea, to drink salt water: and in this country, in some lo-

calities, it is not uncommon to find pieces of rock salt placed in the farm-yards for the cattle and horses to lick.—*Edmund Thos. Higgins ; 8, Lansdown Place, Clifton.*

The Time and Manner of the Procreation of some species of Whales. The manners of the cetaceous animals of even our own seas, when free in their native element, have been so little observed, that every opportunity of studying them deserves to be diligently employed, and every authentic remark treasured up ; by which means we may hope, in time, to obtain possession of some interesting knowledge of the distinctive habits of the different species. It is true, that in consequence of the element they inhabit, and the situations in which for the most part they are found, a portion of this information may come to us rather from enquiry among unscientific persons, than direct observation ; and that consequently a less degree of confidence will be placed in it, from possible inaccuracy in the reporter. Yet it ought not, even on this account, to be neglected ; and when a fact is corroborated by more than one person, and it is supported by collateral circumstances, with perhaps the evidence of ancient narratives, that have been rather passed over as uncertain than rejected as false, and therefore are only waiting to be re-observed, it comes forward with claims which the naturalist will find it difficult to refuse. These remarks are suggested by a comparison of notes, which, with a long interval, I have inserted in my journal, and which I now beg leave to communicate to the readers of ‘*The Zoologist.*’ In the year 1828, while conversing with some fishermen on the subject of a large whale then exciting some attention on our coast, one of them informed me of the following circumstance, to which he was a witness some time before, in the Bay of Biscay ; and for the truth of which he appealed to a man then standing by, who was then in the same ship, and noted the same occurrence, as, indeed, at the time, did the whole ship’s crew. A very great number of whales, of the smaller kind, were assembled in a company, he supposed to the amount of a hundred or two ; and they were observed to raise themselves in pairs, successively, with their anterior parts bolt upright in the water. Each pair, close together, were so elevated but for a short time ; but they continued to do this in distinct pairs, for at least an hour ; and at the same time they continued to utter loud and disagreeable sounds, which the other man compared to the neighing of a horse. When thus elevated above the surface, he supposed each pair to resemble the trunks of a couple of oak trees. A sailor who was on board the ship at the time, informed the rest, that he had witnessed similar occurrences before ; and that they were engaged in the act of procreation : a circumstance of which my informant entertained no doubt. At the time when this information was noted down, I was not aware that anything at all resembling it had ever been recorded ; and therefore I was as much surprized as gratified to meet with the following, in Ruysch’s ‘*Theatrum omnium Animalium,*’ vol. i. folio. “*De coitu partuque (verba sunt Schonfeldii) venatores referunt, Balænas contracta societate et consuetudine in amorem mutuam, quum conjunctione, saltatione aliisque affectuum conjugalium significationibus inter se testantur coire ; hinc una natate semper, amicitiamque cæptam conservare, donec accensa ad libidinem fœmina, erecto ad perpendiculum et in caudam corpore, marem eodem situ obvium, pinnis suis tanquam brachiis duobus, amplectatur, mutuoque complexu per horæ dimidium, vel integram utræque hæreant.*” A further corroboration of the accuracy of these particulars was received in the course of the present summer, (1845) ; when a fisherman who is in the habit of bringing me a variety of specimens, and whatever information falls in his way, informed me, that on the 18th of July, at a very early hour in the morning, when he was engaged in examining his crab-pots, and consequently not far

from land, a herd of what are commonly denominated porpoises, but which are a larger species than the common *Delphinus Phocæna*, came about his boat. He noticed them to be about ten or twelve feet long; the head round, and with a single falcate fin on the back, though he believed that one, which he had an opportunity of observing near, had a lower second dorsal fin, not far behind: the colour of most of them piebald, or, as he said, like a Jersey cow. They appeared to be much at play; leaping high out of the water and over each other: but at last his attention was attracted to their raising themselves perpendicularly in the water, in pairs, with two-thirds of their length above the surface. They were somewhat scattered, but he remarked two pairs very near each other; and each couple maintained the upright position as long as would have allowed him to have taken up a gun, if he had had one, from the bottom of his boat, and to level it at them; their sinking being gradual, from their highest elevation, in a perpendicular posture, until they disappeared beneath the surface. These animals were not all erect at once, but the whole occurrence was soon over; and no sound was uttered by them, except the usual sniff of breathing. The whole of this occurrence was at a short distance from the observer, and it was related to me from no motive but of the truth. It was remarked also, that he had never witnessed such an occurrence before.—*Jonathan Couch; Polperro, September, 1845.*

*Notice of the System of Nature.**

EVERY work on science produced by a zealous and earnest mind is advantageous, though it contain errors of detail, or even though its arguments be based on incorrect principles; because it compels those whose duty it is to expose the one or refute the other, rigidly to examine the subject under consideration, and to enforce instead principles which are truly sound: and thus science reaps the benefit of the investigation which such a work, as a matter of necessity, must call forth. But the work before us we pronounce — with entire conviction — to be good; not only on account of the somewhat negative ground advanced above, and to which we may again advert, but good in itself, both on account of the intrinsic value of the principles it lays down and of the manner in which they are applied.

Having seen the defects of all classifications of animated beings which have been previously published, Mr. Newman proposes, in the present work, the outline of a classification entirely new. Of his qualifications for such an undertaking we need not speak: the circulation of two editions of his ‘Grammar of Entomology,’ and two of his ‘History of British Ferns,’ has enabled the scientific world duly to appreciate his abilities as a naturalist.

* ‘The System of Nature: an Essay.’ By EDWARD NEWMAN. London: John Van Voorst.

To place organized beings in such order, that any one of them, selected at random, shall have a greater relationship with its neighbours than with any other species, or in other words, *to assign to each species that place which it really occupies in Nature, and in which its propinquity to or distance from every other species shall exactly correspond with the amount of difference between it and each of them*, — this is the great desideratum, the ideal perfection to which the energies of the greatest naturalists and of the greatest minds from Aristotle downwards have been directed. Now although a perfect scheme of Nature has not been realized, and probably never will be realized until science itself shall be complete — and perhaps our earth may never be permitted to witness the day — still considerations of this kind need not deter us from making the attempt. No effort of the mind is lost: the foundations of chemistry were laid by alchemists in their search for the philosophers' stone; and in the pursuit of the ideal perfection in methodical combinations, naturalists have brought to light a multitude of relations, all leading us nearer to the desired end. And supposing they never attained this, yet they arrived by degrees at a classification whose relative value must crown their efforts with results eminently useful. And we think that more than one result of this kind will flow from the new classification proposed by Mr. Newman. The methods previously proposed were linear, that is to say, they placed beings on a line, either direct or curved, and returning into itself: simple or double. Now our author well observes: —

“Infinitely varied though they be, the naturalist seldom finds in created beings those sudden transitions from one structure to another which this the most approved linear system is constantly exhibiting; the reason is obvious: in carefully following out similarities, in seeking with a free and unfettered mind to trace in each animal all its points of resemblance to others, he will constantly find some conspicuous form which shall possess several marked characters; one of such characters shall be possessed by several other animals, a different character by each different animal: again, he will often find that an obviously natural group contains widely different forms, some of such forms bearing a greater superficial resemblance to certain other groups than to the usual form of that group to which, from a comparison of their anatomical structure, they obviously belong: these forms, which have been called abnormal, differ also exceedingly from each other, yet still generally exhibit, in a nearly equal degree, though widely different mode, similarities to the usual or what is properly termed normal form of the group. Now no system hitherto invented will at all cope with this: in a linear-series any group that shall contain representatives of even three other groups cannot possibly be so arranged as that each representative shall approach the form represented; hence no system possesses capacity sufficient to account for those diversified similarities which all reflecting naturalists must have observed, and I cannot but con-

sider it the test of a natural system that structural similarity should be indicated by a corresponding propinquity in situation." — p. 4.

Mr. Newman then proposes a remedy for the imperfections inseparable from every linear system.

"Every animal or group of animals being structurally similar in an equal degree to several other animals or groups of animals, such similarity in one to several can only be expressed by so approximating all, that each shall approach its like. As a familiar illustration of my meaning, I adduce the four marked groups of vertebrated animals: 1. Placental viviparous animals; 2. Birds; 3. Reptiles; 4. Fishes: no naturalist of any standing will question the propriety — in fine the truth of these divisions: I do not say that no naturalist will plead the existence of other groups which may be placed on an equal footing with these, but that none will attempt to maintain that these are not signally natural and signally distinct. In one of these groups—the placental animals — we find a bat, an ant-eater, and a dolphin, and these respectively structurally resemble a bird, a reptile, and a fish. It appears to me that this structural resemblance can only be shown by placing the placental animals in the centre, and the others around them."—p. 7.

Carrying out these views, our author places man — on account of his superior organization, and on other considerations — in the centre of animated beings; and around *him*, their model and type, he places three other groups, the monkeys, the lemurs and the sloths. These, united to man, constitute a *normal* group (Manupedina), nearly corresponding to the Primates of Linneus: this group is surrounded by six others, comprising (with the Manupedina) the whole of the placental animals. The six surrounding groups are, three subnormal (Ferina, Glirina and Belluina), and three abnormal (Vespertilionina, Brutina and Cetina), the latter alternating with and exterior to the former, and serving to connect the placental with the implacental or oviparous animals. These are, in their turn, ranged around the placental animals, forming one large assemblage called Vertebrata; and so on, until we arrive at the extreme limits of animal organization: each group being subdivided on the same plan, namely, the normal or most perfect in the centre, and the others around; each being placed nearest to that which it most resembles: so that every group is in fact a miniature representation of the entire system. In order to illustrate this concentrical arrangement, a Map of the Animal Kingdom is given, in which a series of concentric circles is made to represent the gradations above described. Thus, the inner circle contains man, a larger circle the Manupedina, a still larger the Vertebrata, and the exterior circle contains the Animal Kingdom.

"Beginning with man as a centre, I have added the various groups of animals around him in a series of rings: these rings amount to eight in number, besides the

central area, which I suppose occupied by man and those quadrumanous animals which most nearly approach him ; and the exterior groups being limited by a series of concentric circles, each increasing in diameter as the animals, whose limit it circumscribes, are supposed to recede in structure from the normal and central form of man."—p. 109.

Such is the ground-work of Mr. Newman's System, and it appears to us both original and true. We shall now attempt to analyze some of its details.

The first chapter is devoted, *first*, to a very just and very moderate criticism of the difficulties inseparable from linear systems: *secondly*, to a very short — too short — exposition of the author's own views of classification: *thirdly*, to the immediate application of his views to the grouping of placental animals. We think this multiplicity of matters a defect, and that it would have been better to have devoted an entire chapter to the explanation of the principles of classification. At present, this part is too brief. Owing to this brevity we acquire but an incomplete idea of the author's views: we cannot see whither he would lead us: and for our own part we candidly admit we could neither understand the fundamental views of our author as a whole, nor their application in detail, until after the perusal of the sixth, seventh and ninth chapters; but, we are bound to say, that when, after reading these, we returned to the first chapter, we found the whole to be perfectly clear and satisfactory: and we think Mr. Newman has been peculiarly happy in the grouping of the placental animals.

The object of the second chapter is to show that the marsupials form a class distinguished from the placentals by their physiology, their diversity or divisibility, and their antiquity; and for the manner in which he has accomplished this task, we cannot refrain from praising the author: on all these points we entertained an opinion precisely similar, before we had read his work. But while we praise him, it is not for having formed a distinct class of the marsupials, for Cuvier, as Mr. Newman shows, had indicated this, De Blainville had proposed it, and Owen had established it; it is not on account of his pointing out their extraordinary diversity, for this had also been done; it is not for his reminding us that marsupials were the most ancient of the mammifers, for Buckland and Owen had established this beyond a doubt; but we praise him, and that in the highest degree, for having brought the opinions of these naturalists so clearly and so forcibly together, in confirmation of his own: and we praise him for his lucid arrangement of these animals, in which he points out the relations which unite them, not only to the birds and the reptiles, but also to the placentals: and he is equally happy when he shows, by

means of his concentric circles, the stations which he assigns to the marsupials in the chronological history of our globe. The examination of the remains of these intermediate beings, indicates that their first appearance on the earth was intermediate between the oviparous and placental Vertebrata. They have been found in the schist at Stonesfield, and the question is therefore set at rest: but had it not been so, had the recent animals not yet been discovered, we must have conjecturally assigned them the intermediate organization which they possess, and thus predicated their existence, as Kant is known to have done that of minor planets, which have since been discovered. *Natura enim non facit saltus.*

And here we venture one remark. Mr. Newman places the marsupials at the same distance from man as the cartilaginous fishes and the Reptilia Cataphracta. We doubt the correctness of this. Are these three classes equidistant from the placentals? We think not: we think the cartilaginous fishes should be more remote; and we fear Mr. Newman has been led away by his favourite number *three*, which he constantly reproduces throughout his classification. In order to obviate this objection, or rather to reply to it, our author tells us that seemingly cabalistic numbers are "the result of a principle, and not the principle itself." And the result of what principle? Of the approximation of like to like? We cannot understand how the number three results from such a principle; and as we are considering this subject, let us remember that in his ninth chapter, the author, when laying down the general disposition of the groups, informs us that the principle which predominates in his plan, and leads to the result of facts, is, "that every natural group appears divisible into four minor groups, three of which are double, and surround the fourth, which is central and single."

Assuredly, nothing can be more seductive than the simplicity and order of the proposed divisions, either to the mind which has conceived them, or the eye charmed by such regularity. But is this order so perfect, so consummate, produced solely by Nature? We have felt doubts, perhaps ill-founded, but still, we acknowledge it, we have suspected something artificial. The illustrations which Mr. Newman should have given in many parts of his work, might have dispelled this, but he has not given them; and lacking these, we have inquired whether—supposing that Nature worked in this symmetrical matter—we are acquainted with the intermediate degrees, and whether, in order to find them, we may not do violence to analogies; and whether such an instance do not occur at p. 36, where, for the purpose of

showing that there are seven groups in the class of marsupials, corresponding with those of the placentals, the Pterodactyles are brought forward as a counterpart to the bats. Mr. Newman must excuse this; he feels the doubt, and, according to his promise, he should dispel it.

In the third chapter, entitled "Birds a distinct class," the author applies to the division of birds the principle by which he has attempted to prove the distinctness and integrity of the marsupials. Mr. Newman defines the leading characteristics of each group of the placentals, and adduces what he considers its parallel among birds: the chapter is replete with interest, and we may say the same of the fourth; it gives us a new view of the classification of reptiles, which, although confessedly hypothetical, is well worthy the attention of zoologists.

The fifth chapter is the most orthodox of all. It is devoted to fishes; and after adopting the usual division into bony and cartilaginous, the author shows that each of these groups contains representatives of the great divisions of the other.

The sixth chapter commences with these observations: —

"Having thus indicated the six classes by which I suppose the placental class to be surrounded, it becomes necessary to show in what manner I propose connecting them. I have ventured, at page 12, to suggest that the placentals divide into seven tribes, one of which is normal and central, three subnormal, and stationed at certain distances around the centre, and the remainder abnormal, stationed at a greater distance and alternating with the subnormal tribes. A similar disposition of the classes seems to me in accordance with nature. The placentals form the normal and central group; the marsupials, cartilaginous fishes and pachydermatous reptiles form the subnormal groups; birds, true fishes and true reptiles form the abnormal groups, or, in other words, recede farthest from the central and normal form of man. The subnormal and abnormal groups appear to alternate with each other in this order, — marsupials, birds, cartilaginous fishes, bony fishes, reptiles cased in armour, scaly or naked reptiles; and the relative mutual similarities of the seven groups may be shown thus:

AVES.

PISCES CART.

MARSUPIALIA.

PLACENTALIA.

PISCES OSSEI.

CATAPHRACTA.

REPTILIA.

I will now endeavour to explain my reasons for supposing the placentals thus surrounded."—p. 69.

And this Mr. Newman has truly and most happily realized by a series of observations replete with originality and research. The like

praise must be awarded to the seventh chapter, which extends the classification to the utmost bounds of the Animal Kingdom; expressing however our regret that the author has passed over with so slight a notice the Mollusca and Echinodermata, and that he had not, at least in our opinion, made good his position of the latter, which are placed at an equal distance with the former from the centre, although among the mollusks are animals endowed with highly developed organs. May not the love of symmetry have influenced this arrangement? Entomologists, however, cannot thus complain: Mr. Newman has devoted an entire chapter to the application of his views to insects, and it is with reason that he remarks, — “If there is truth in any proposition as applied to the Animal Kingdom, I conceive it should also be true when applied to an integral portion of that kingdom.” For the execution of this part of his task, we feel assured that Mr. Newman has received from entomologists that commendation which he so uniformly deserves at their hands.

Lastly, having resumed the subject of general arrangement, and having further illustrated it by means of the concentric circles to which we have already alluded, Mr. Newman adds, “as explanatory of this grouping, I now offer some general observations on the principles which seem to have been employed more or less directly as accessories;” and this explanation he makes the subject of a ninth chapter, which is extremely clear, highly interesting and replete with original ideas.

The remaining chapters treat of the unity of the System of Nature, and contain noble and profound philosophical reflections. In order to give an adequate idea of them, extracts would be requisite too extensive for the limits of ‘The Zoologist.’

And now let us ask, what will be the influence of this book? Why, far less than it deserves; — altogether inadequate to the sterling value it contains. Indeed, it is the universal fate of works that contain ideas not sufficiently developed to be available for the arrangement of collections or the compiling of monographs — and such is the work we have been reviewing — to lie dormant until some compiler, some classifier, adopts the great fundamental principles, modifies some minor details, boldly applies it to some group of the Animal Kingdom, and publishes it as his own, forgetting to acknowledge to whom he owes the original idea. May we then urge on Mr. Newman the importance of developing his system, and applying it in detail to every branch of the Animal Kingdom? But even supposing this application to be made, and made successfully, still, Mr. Newman’s system

will have to overcome all the difficulties which every reform has to encounter. In Botany, when it was attempted to replace the artificial method of Linnæus by the natural system of Jussieu, the timid rejected the new system in silence, the bold declared themselves openly against it. In the 'Flore Française,' dated 1828, the classification was still Linnean; and we know of more than one good herbal which is still thus arranged. There is an intense spirit of resistance to all innovating systems, all innovating books. Mr. Newman's will form no exception. In this, however, let us express a hope, a wish, that we may be in error; and not only on this point, but also in the few objections to his views which we have expressed above.

J. D. J.

A Catalogue of Birds observed in South-eastern Durham, and in North-western Cleveland. By JOHN HOGG, Esq., M.A., F.R.S., F.L.S., &c.

(Concluded from p. 1112).

White Grouse, or Ptarmigan, *Lagopus vulgaris*. Somewhat less than the former. I have been informed by Thos. Meynell, Esq., Jun., F.L.S., that a fine specimen of this bird had been shot in Nov. 1831, on the cliffs near Castle Eden. This is the only straggler which I have ever known to have been observed in this part of England. It is not improbable that it may either accidentally have been driven across the North Sea from the opposite coast of Denmark by a storm, or have strayed southwards down the east coast from Scotland. The great variation which takes place in the plumage of the ptarmigan is effected by the changes of atmospheric temperature. On this subject consult a short paper in Loudon's 'Mag. Nat. Hist.' vol. v. p. 718, by myself, and signed "Zoophilus." In it I have made no allusion to the fact, that white, of all colours, radiates the least, and therefore retains the inward, or vital heat for the longest space of time, because I considered that fact to be too well known to require any notice. I will, however, only add, that the plumage of the ptarmigan becomes white during the severity of winter, without any actual change of feathers taking place: unless, indeed, in the autumn, at the moulting period, the atmospheric temperature should happen to be sufficiently cold, then the new feathers would come white at once, for I have seen specimens in which the feathers themselves are in part white, and in part brown.

Common Partridge, *Perdix cinerea*. Pairs early in February, or a little sooner, if the winter be very mild. The young follow their parents in a "covey" till the wild and windy weather commences in autumn, when several coveys "pack," *i. e.* become gregarious. As to changes of the weather, the partridge is extremely "præscia venturi;" for before a storm of wind or rain, it becomes very wild, and thus accurately forbodes bad weather. Indeed, birds in general are highly susceptible of atmospheric variations; and the Baron Cuvier on this subject justly writes:—"leur passage rapide dans les différentes régions de l'air, et l'action vive et continue de cet élément sur eux, leur donnent des moyens de pressentir les variations de l'atmosphère dont nous n'avons nulle idée, et qui leur ont fait attribuer, dès les plus anciens temps, par la superstition, le pouvoir d'annoncer l'avenir."—(Règne Animal, p. 300, tom. i.). Partridges vary in plumage a good deal according to age, or situation. In this neighbourhood a variety occurs in autumn with a white crescent on the breast, but this I am inclined to consider, with Dr. Fleming, as only the hen of the first or second year. The heaviest partridge (a cock) which I remember to have shot, weighed very soon after it was killed, one pound and two ounces, on Jan. 24, 1825.

Common Quail, *Coturnix vulgaris*. A very scarce visiter in this vicinity; but sometimes met with in a hot summer. Several persons, who have been desirous of retaining a breed of quails on their estates, after having imported some old birds, and having been successful for one, or perhaps with a stray pair or two for the second year, find their labour at last to be in vain, and discover the impossibility of preventing them from leaving their native fields. Had they recollected that quails are by nature migratory birds, they might have saved themselves much care, and some expense. They migrate from Europe to Africa in vast flocks: and, according to Mr. Lloyd, they reach in their northern summer-visits, as far even as Sweden. Mr. Yarrell has related (Brit. Birds, vol. ii. p. 358, &c.) some matters of considerable historical interest with reference to this species, and in addition to them I would only observe, that the celebrated Island of Ortygia, on which a part of the very ancient and renowned city of Syracuse was built, and on which alone the present town now stands, was so named from ὄρτυξ, a quail, in consequence of the number of those birds that used to frequent it.

Great Plover, Stone Curlew, *Ædicnemus crepitans*. Mr. John Grey has a specimen in his collection, which was shot in the high

grounds between Saltburn and Brotton. And last year (1843), another was killed near Saltholm, by the Tees.

Golden Plover, *Charadrius pluvialis*. Not unfrequent in some winters and springs: it is a bird in great request for the table, but is very rich and somewhat greasy.

Dotterel, *Charadrius Morinellus*. This bird of passage "visits our moors in flocks early in the spring."—*J. G.* Rare at Hartlepool, according to Sharp's List.

Ringed Plover, *Charadrius Hiaticula*. Frequent on the sea-coast. It is a species of much interest from its geographical range, which extends from Greenland, Lapland and Siberia, as far as Asia and Malta.

Grey Plover, *Squatarola cinerea*. Easily distinguished from the golden plover by having a toe behind. I have shot it occasionally near Hartlepool and the Tees' mouth in October. It is excellent eating: indeed, I think more delicate and less oily than the golden plover.

Lapwing, or Peewit, *Vanellus cristatus*. A beautiful species, and famed for its delicious and rich eggs. Its flesh is likewise much esteemed. Though not a water-bird, still it frequents moist grounds, fens, and marshes near rivers.

Turnstone, *Streptilas Interpres*. Only an autumn and a winter visiter on our shores, and is certainly rare. I have notes of one having been shot near Seaton, in the autumn of 1829, and of another at Seaton Snook, in February, 1837. It is included in the List of Birds published in Sharp's 'Hist. of Hartlepool.' The turnstone has been observed in all quarters of the world. The bill of this genus is somewhat depressed at its culmen.

Sanderling, *Calidris arenaria*. The sanderling's bill is compressed at the base.

Oyster Catcher, Sea Pie, *Hematopus ostralegus*. Vulgarly termed by the Hartlepool fishermen, mussel-cracker. Mr. Jenyns says that it "is never found inland," (*Brit. Vert. An.* p. 184), but it appears that it is sometimes met with on the banks of the Trent, in Leicestershire. See Yarrell's 'British Birds,' vol. ii. p. 435.

Common Heron, or Hern, *Ardea cinerea*. The only herony I ever saw, was on the islands in Rydal Lake, Westmoreland, and which I am surprised is omitted by Mr. Yarrell in his List given at p. 448, vol. ii. 'Brit. Birds.' Many herons' nests are annually built in the fir-trees which grow on two or three little isles in that lake. When rowing in a boat near those isles, I have surveyed with delight

the old and young herons sitting on the tops of the trees, putting their long necks and beaks close down upon their shoulders, and which are then not visible at a distance; they sit perfectly still, and appear like cinerary vases fixed to the boughs. The young birds are of a bluish-grey colour. The old ones seem to have a difficulty in their first rising to fly off a branch; but in soaring high into the air they exhibit considerable power. The herons in that spot are strictly protected by Lady Fleming, the Lady of that lake. This bird has been long esteemed for the table as among the best of game. Once only I partook of a young heron, which was stuffed like a turkey, roasted, and served with currant jelly, and extremely good it proved. Its flesh was dark-coloured, and in flavour most resembled hare. The heron is very common by the Tees, and is said to have shown, in some springs, an inclination to contest with the rook for the large trees at Greatham, and to build there. As yet, however, the rook continues sole master.

Bittern, *Botaurus stellaris*. The absurd name *Botaurus*, which is, I conclude, from *Bos* and *Taurus*, a bull, has been given to this bird by three or four authors: so one might as well call a bird *Equucaballus*, a horse! In my MSS. I have named this genus *Erogas*, from ἔρωγας, a heron. The bittern is exceedingly rare, but has been shot occasionally in our marshes near the Tees.

White Stork, *Ciconia alba*. Two of this species were seen in Cowpen marsh in the spring of 1830, when one of them was shot. This migratory bird I have often noticed in France, Germany, Switzerland, &c.

Common Spoonbill, *Platalea leucorodia*. The remarkable shape of this bird's bill, renders it an object of much curiosity to the ornithologist. In other respects it generally resembles the egret. Its specific title, *leucorodia*, is derived from λευκός, white, and ἔρωδιός, heron: so, others have given it the like term of *Albardeola*, or the little white heron. I have only heard of a single spoonbill having been killed on the Tees marshes: and this was some years ago. It was seen by Mr. Hixon; and very probably it may have crossed the sea on its migration to or from Holland, where the species is common in the summer.

Avocet, *Recurvirostra Avocetta*. One bird was shot in the winter of 1827-8, near the Tees. It is frequent in North Holland and South Denmark. Its singular bill is as much curved upwards as those of the curlew and whimbrel are downwards, and I think even more so; whilst from its weakness and great flexibility it seems only

designed for seeking insects in oozy and watery ground. Its feet are semi-palmate, or half-webbed.

Common Godwit, Bar-tailed Godwit, *Limosa rufa*. Dr. Fleming has, by mistake, applied the specific term *ægocephala* to the black-tailed godwit, I propose, however, restoring it to this species, since it is its old specific title: the present bird being the *Scolopax ægocephala* of our early zoologists. The godwit varies much in plumage, according to the season, sex and age, and is readily known from the whimbrel by the bill being curved upwards. Inhabits the seashore, and the sides of the Tees, in small flocks at the latter part of the year. Mr. Herbert informs me that it feeds greedily upon barley.

Curlew, *Numenius arquatus*. The curlew frequents our grass-fields inland in August and September, when it is extremely good eating. The statement of Pennant that its "flesh is very rank and fishy," only refers to it in the winter, and other times when it seeks its food on the sea-coasts. In the summer it is seen in our more elevated moor lands.

Whimbrel, *Numenius phæopus*. Less abundant with us than the preceding.

Common Redshank, *Totanus calidris*. Not uncommon in the Tees Bay, and has been known to breed in the marshes near Port-rack. At some parts of the year it is a solitary species, but at others becomes gregarious. Its shrill scream or whistle sounds wild and not unpleasing.

Common Sandpiper, *Totanus hypoleucus*.

Spotted Sandpiper, *Totanus macularius*. "In my collection, shot on the Tees."—*J. G.*

Greenshank, *Totanus glottis*. "In my collection; not uncommon, but never numerous."—*J. G.*

Ruff, *Machetes pugnax*. The female is called *Reeve*. The male, the larger of the two, varies perhaps more than any other bird in its livery, and is only seen with its handsome ruff or frill around the neck in the breeding season. Occasionally, though very rarely, shot in our marshes near the Tees. It passes, on its migrations, as well into the south of Europe, as into Scandinavia and Russia.

Woodcock, *Scolopax rusticola*. The woodcock arrives here about the 15th of October, but does not remain with us, proceeding to the larger woods further inland. The greater number of these birds come with a north-east wind during the full moon, in the latter end of October, which, with us, is called the "hunter's moon." Once only I remember to have seen a woodcock on its direct passage; its flight

was then high, and very swift, perfectly different from its usual owl-like mode of flying when disturbed in cover. Soon after it has crossed the sea, I have flushed it in hedges, and even shot it in the open fields, particularly in turnip-fields. It returns to us at the end of March, or the beginning of April, on its migration to northern summer quarters. Mr. Yarrell observes (vol. ii. p. 587), "a woodcock when flushed on the coast has been known to settle on the sea, and when again disturbed, rose without difficulty and flew away." This, however, appears at variance with the following fact related by Sir C. Sharp, in his 'List of Birds' (p. 16), "many woodcocks were found drowned on the north sands near Hartlepool, about twelve years since, in the spring, supposed to have met with a contrary wind." The woodcock has been known to breed in the woods above Stokesley. A friend, who has passed two or three winters at Frankfort on the Maine, tells me that woodcocks are plentiful in that part of Germany, and that the method of shooting them is in the dusk of the evening, when each sportsman, stationing himself at a different part or corner of the wood, shoots the birds as they fly past in proceeding to their feeding grounds. He adds, that their call-note is a hoarse noise, something like the croak of a frog, and gives notice of their approach. Woodcocks (*Becaccie*) to my own knowledge are abundant in the winter near Rome; and they are still more so in the woods of Albania.

Great Snipe, Double or Solitary Snipe, *Scolopax major*. The specimen mentioned in my 'Catalogue of Birds' ('Hist. Stock.' p. 11, No. 87), was shot by a gentleman, in company with Mr. J. Grey, near Newport on the Tees. Common in the Pontine Marshes near Rome.

Common Snipe, *Scolopax Gallinago*. A few remain during the year. In its migrations hither it is very uncertain: in the winters of 1838 and 1839, scarcely a snipe frequented our marshes near the Tees, where formerly there used to be vast numbers. A good many arrived in February, 1843, but few in the same period of 1844.

Obs.—The bird named in my Catalogue, No. 86, the Russian snipe, and which has been rarely met with in our saltmarshes near Cowpen, and which is said to be without the yellowish-white lines on the back, is, I think, most probably Sabine's snipe, (*Scolopax Sabini*). I have never yet been fortunate enough to see an example of it.

Jack Snipe, Judcock, *Scolopax Gallinula*. A solitary and silent bird, coming here before the woodcock. The bill of the snipes and woodcock is admirably adapted to digging in soft and wet ground; the end, being spongy and cellular, gives the bird the power of dis-

tinguishing its food, as worms, &c. deep in the soil. All these birds are extremely fond of a small kind of red worm.

Curlew Sandpiper, Pigmy Curlew, *Tringa subarquata*. Mr. Selby, in his 'Catalogue,' p. 274, says, "a male and female, now in the possession of Mr. E. Backhouse, jun., were killed near Hartlepool." And Mr. Fox, in a 'Notice of some rare Birds,' &c., published in the 'Transactions of the Nat. Hist. Soc. of Northumberland, Durham and Newcastle-upon-Tyne,' vol. ii. p. 184, mentions "two specimens which were killed by Mr. Scruton at Hartlepool, out of a flock of five." Also "in my collection, having been shot on the mud-banks by the Tees."—*J. G.*

Knot, or Knute, *Tringa Canutus*. Not unfrequent upon the sandy coast in autumn and winter, and "numerous on the shores of the Tees."—*J. G.*

Little Stint, *Tringa minuta*. "In my collection, shot on the Tees' side."—*J. G.*

Pectoral Sandpiper, *Tringa pectoralis*. An American species. Mr. Yarrell states (Preface, p. xi.) that "Dr. Edward Clarke wrote me word that he shot a specimen of this rare sandpiper very near Hartlepool, in Oct., 1841." Some naturalists have doubted the migration of birds from any part of the New World to our own coasts. The appearance, however, with us of the present species, which is truly a native of America, may be quoted as a proof of the fact. If we consider the passage from America to England, there is nothing in it impossible, or exceedingly difficult, for the flight of a strong-winged bird. For I may remark, that a migrating bird most probably comes from the other districts of America by Greenland, to Iceland, and the Faroe Isles, thence to the Shetland Islands, and Orkneys, and so down the east coast of Scotland to our eastern shores in Durham.

Dunlin, Purre, or Stint, *Tringa variabilis*. The first English name refers to this bird in its summer dress; and the second and third to it in winter.

Purple Sandpiper, *Tringa maritima*. Mr. John Grey has two stuffed specimens of this *Tringa*, which were shot in the lakes in Hartlepool a few years ago. According to Mr. Yarrell, "the prevailing bluish lead colour of this species at once distinguishes it from every other British sandpiper."

Landrail, Corn Crake, *Crex pratensis*. A regular visiter in she spring: with us the peculiar note, or crake, is seldom heard after the middle of July. When roasted it is justly esteemed; though to my taste it is often too fat and greasy. Not strictly a water-bird, yet its

favourite localities are moist meadows and corn-fields. It is insectivorous as well as granivorous.

Spotted Crane, or Gallinule, *Crex Porzana*. This elegant species has been shot in Mordon Carrs, to the south-west of Sedgfield, and likewise on October 4th, 1832, in the old bed of the Tees near Mandale Mill. Considered as a bird of passage.

Water Rail, *Rallus aquaticus*. Not unfrequent throughout the year by the sides of our rivulets.

Common Gallinule or Water-hen, *Gallinula chloropus*. The water-hen is a most generally diffused species.

Coot, Bald Coot, *Fulica atra*. Not common here, except in the lakes at Hardwick and Wynyard.

Grey Phalarope, *Phalaropus lobatus*. A rare species upon our coast. The red phalarope of Bewick, 'Brit. Birds,' vol. ii. p. 139, edit. 1804, is only this bird in its summer livery. It is included in Sir C. Sharp's 'List of Hartlepool Birds.' The singularly scalloped and broad membrane of the feet renders the present genus closely allied to the true web-footed birds (Palmipedes), or Natatores.

Wild Swan, or Hooper, *Cygnus ferus*. This truly noble and majestic species visits our coast and salt-marshes in every hard winter. Several were shot in February, 1838. They do not arrive much before Christmas, but amongst my MSS. I find the following note:—"Dec. 19th, 1829.—Many wild swans have already been seen both by the Tees, and in Mordon Carrs." They have been noticed in their migrations over an extensive range, from the extremity of Lapland to the north of Africa, and the numerous seas or lakes of Asia. Many authors have erroneously supposed that the tame swan, *Anas Cygnus*, *β. mansuetus* of Linneus, is derived from the present bird. The domestic swan, or mute swan, has an orange-red bill, a large black tumour on its base, and twenty-four feathers in the tail, in which it differs from the hooper, as also in not having the same shrill or loud note. The two birds, however, are essentially distinct. The mute swan is found wild in the countries adjacent to the Black Sea and to the Caspian; and as Mr. Strickland says it visits the Bay of Smyrna, in Asia Minor, it doubtless still frequents the rivers Caystrus and Mæander, which, from the earliest times, were celebrated for that bird. The swan, not only from its beauty, but likewise from being a water-bird, was sacred to Venus as emblematic of her sea-born origin. The hooper is also designated the musical, or whistling swan, from its peculiar voice; another swan is termed the trumpeter, but none as yet is known to have any true power of singing, notwithstanding the mute

swan has a soft and rather plaintive note; in fact, from the remarkable formation of their windpipes, Nature seems to have rendered that most improbable. The hooper's voice is perhaps the most melodious, although that is only hoarse, and fully answers to Virgil's description: —

“Dant sonitum rauci per stagna loquacia cygni.”

Hence, singing swans, *κύκνοι ἀοιδοί*, must still be accounted as fabulous.

Bewick's Swan, *Cygnus Bewickii*. The eye in this swan is placed higher in the head and nearer to the crown than in the hooper; its bill also differs in being somewhat thicker at the base, and a little less flat about the middle. It is smaller and rarer than the preceding. An individual was shot in the winter of 1836-7, near Seaton: it was opened and its trachea well examined. For the distinctions presented by the windpipes, or tracheæ, of the different swans, see the figures in Yarrell's 'Brit. Birds,' vol. iii. at pp. 103, 111 and 121; and the 'Linnean Transactions,' vol. iv. tab. 12, and vol. xvi. tab. 24 and 25. In physical conformation the swan is one of the most highly organized of birds, for it possesses the greatest number of cervical vertebræ as well as of ribs; namely, 23 of the former and 10 pairs of the latter: also the muscles attached to the breast-bone are immensely strong; the sternum itself is deep and much lengthened, and so well protects the intestines; and the coracoid and furcula bones are large and powerful. Hence, we find the effect of such an organization to be, that the bird is able to sustain a long and steady flight, to swim admirably, and to walk with considerable firmness and ease. The great number of the vertebræ in the neck, which are so articulated as to permit its being turned and curved in all directions, gives it a snake-like shape, and renders it quite serpentine in its movements. But the neck of the Plotus appears still more like a snake, and is longer in proportion to the body than that of the swan; although I do not know whether it contains more than twenty-three vertebræ or not.

Canada Swan, Cravat Swan, *Anser Canadensis*. I would place this bird, which, from its long neck, most resembles a swan, in the genus *Cygnus*. Mr. Jenyns has done the same, see 'Brit. Vertebrate Animals,' p. 227. And the Baron Cuvier (*Règne Animal*, tom. i. p. 529. edit. 1817) adds in a note, — “me paraît aussi un vrai cygne.” Mr. Yarrell relates (*Brit. Birds*, vol. iii. p. 93) that Bewick says, “great numbers of these Canadian geese were driven from their haunts during the severe snow-storms of January and February, 1814; they

were taken upon the sea-shore, near Hartlepool, and divided among the farmers in the neighbourhood, no pains having been taken to keep the breed pure."

Grey-leg Goose, Wild Goose, *Anser ferus*. A bird now rare in these counties. Until of late years it has been confounded with the next species, and I had fallen into the same mistake in my former Catalogue. The stock from which the domestic goose has sprung, is unknown, and the best opinion seems that it has not originated from this wild goose.

Bean Goose, *Anser segetum*. This is the common goose here. The observations at p. 14, No. 115, in my Catalogue, 'Hist. of Stock.' must be referred to this species.

White-fronted Goose, or Laughing Goose, *Anser albifrons*. "Frequents our marshes in small flocks. The one in my collection was shot near the Tees."—*J. G.* Visits us from the north of Europe chiefly in the winter.

Common Bernicle, *Anser leucopsis*. Scarce near Hartlepool. "Occasionally killed on the Tees, but a rare bird."—*J. G.*

Brent Goose, *Anser torquatus*. Plentiful in the estuary of the Tees in severe winters. The *rat* or *road* goose of Willughby, so called from its Norwegian name, is most likely the present bird.

Red-breasted Goose, *Anser ruficollis*. Two of this very scarce and handsome species have been seen of late years by the Tees. One was shot by Mr. J. Hikely in Cowpen marsh, and afterwards stuffed.

Common Shelldrake, *Tadorna Vulpanser*. An extremely beautiful bird. It is frequent here, and "breeds in rabbit-holes in sand-hills near Hartlepool," (Sharp's List, p. 16); also at Seaton Snook. Aldrovandi calls this the *Vulpanser Tadorne*, but the real Vulpanser (χὴναλώπηξ) appears to be the Egyptian goose (*Chenalopex Egyptiaca*), which is distinctly seen in the ancient coloured paintings and hieroglyphics from Egypt. Yet the shelldrake considerably resembles the Egyptian goose, and from "its instinctive cunning, Turner" (incorrectly) "imagines it to be the Chenalopex, or fox-goose of the ancients: the natives of the Orkneys, to this day, call it the sly goose, from an attribute of that quadruped," (Pennant, Brit. Zool. vol. ii. p. 257). Many ornithologists write the word, *shieldrake*, but I apprehend it is more correctly written *shelldrake*, from the bird's living principally on shell-fish and testaceous Mollusca.

Shoveller, *Anas clypeata*. "Visits us every summer, and has bred in Cowpen marsh."—*J. G.* Sometimes termed Broad-bill, from its

rounded shield-like upper mandible; the generic name signifies the same, and is derived from *ῥυγχος*, a bill, and *ἀσπίς*, a shield.

Gadwall, *Anas Strepera*. Mr. J. Grey obtained, February 18th, 1843, an individual at Stockton, which he has preserved in his collection. This genus has been named Chauliodus, or *χαυλιόδης*, on account of the pectinated lamellæ of the bill being exerted from the upper mandible. Indeed, the lamellæ, or denticulations, constitute one of the principal characters in defining the genera of the Anatidæ. Cuvier has very properly called his fourth family of Palmipedes, Lamellirostres. The chief use of these remarkable lamellæ on the edges of the bill, seems to be for the water to run out between them, whilst their projecting extremities or points retain the food with security. Of the Lamellirostral group, the swans are principally graminivorous and insectivorous, but rarely piscivorous: the geese are graminivorous and granivorous: and the ducks are nearly omnivorous.

Pintail, *Anas acuta*. Rare at Hartlepool, and "seen only in severe weather," (Sharp's List).

Wild Duck, or Mallard, *Anas Boschas*. The greater number migrate to us from the North, but a few breed annually here. In the decoys on the lakes at Wynyard and Hardwick, some rare water-bird has now and then been taken with the common wild ducks. The young ducks are termed flappers, and I have occasionally had much amusement in shooting them near the ditches at Seaton Snook, especially in the evenings, during the light of the "harvest moon." The peculiar and rapid whiz that these birds make with their wings as they approach the sportsman, affords a pleasing sound to his ear. For entertaining descriptions of shooting wild fowl in the Tees Bay, I will refer the reader to Capt. Lacy's 'Modern Shooter.' The domestic duck has doubtless descended from the mallard.

Garganey, *Anas Querquedula*. A fine bird was shot in the marshes near the Tees, in January, 1829. It is not inserted in either Sharp's List, or Graves's Catalogue. In the north of England it is a rarity, for Mr. Yarrell (vol. iii. p. 182) mentions "Mr. Dunn, of Hull, sent me word that he received two in Oct., 1840." Mr. Selby says no instance of its capture further north in England has come to his knowledge; although according to Professor Nilsson it visits Sweden in the summer, yet its chief localities are middle and south Europe, and parts of Asia and of Africa.

Teal, *Anas Crecca*. Common to three portions of the globe. Here it is found from the early part of autumn throughout the winter. Its flight is strong and rapid.

Wigeon, *Anas Penelope*.

Golden Eye, *Fuligula Clangula*. The morillon (*Anas glaucion*, Linn.) is the young and female of this bird. The male or drake is very handsome. Hereabouts somewhat rare. It is remarkable that this species prefers to build its nest in a hole of a tree, which may be growing near water. Notwithstanding that the tracheal tube and labyrinth of the golden eye, approaching those of the Mergi, would direct me to place it the last in this group, as Mr. Yarrell has done, I have arranged it first, since its size, shape and appearance clearly indicate its place to be next to the wigeon.

Long-tailed Duck, *Fuligula glacialis*. Truly an arctic bird: occasionally met with in hard winters. The windpipe of the male is remarkable for its enlargement, and is figured in Yarrell's Birds, vol. iii. p. 261.

Tufted Duck, *Fuligula cristata*. A rare visiter near Hartlepool. One shot on the Tees in December, 1823.

Scaup Duck, *Fuligula Marila*. In some winters plentiful. Sir C. Sharp has stated in a note to his 'List of Birds at Hartlepool,' that "in the winter of 1788-9, they were found in such quantities that above 1000 were caught in a week, and sold for 1s. per dozen."

Pochard, *Fuligula ferina*. Not uncommon "on the Tees in winter, but never numerous."—*J. G.*

Common Scoter, *Ædemia nigra*. Rare on this coast. Mr. J. Grey has two stuffed specimens; a male and a female.

Velvet Scoter, *Ædemia fusca*. An individual was shot by Capt. Dalton, October, 1829, near Seaton. The tuberculated portion of the bill at its base is the chief character of this genus, which is so named from *ὄδισμα*, a tumour.

Eider Duck, *Somateria mollissima*. At Hartlepool, "extremely rare: one shot in 1789."—(Sharp's List).

Smew, *Mergus albellus*. Both in form, and in its black and white plumage, the male smew is an elegant species. "A rare visiter: several have been shot near Yarm. One killed at Saltholm."—*J. G.*

Red-breasted Merganser, *Mergus serrator*. I have seen two specimens that were shot near Hartlepool.

Goosander, *Mergus Merganser*. The dun diver (*Mergus Castor*, Linn.) is proved to be only the female of this bird. Rare at Hartlepool according to Sharp's List. The enlargements or labyrinths in the windpipes of this genus are extremely capacious.

Cormorant, *Phalacrocorax Carbo*. The crested cormorant is only the adult in its bridal costume during the spring and summer.

Frequents the Tees to a great distance inland. In this genus and the next, the claw of the middle toe is serrated on its under side, like that of the goatsucker. And one would imagine, that the sense of smelling is possessed by the Carbonidæ in a very small degree, since their nostrils are concealed and almost impervious.

Shag, *Phalacrocorax graculus*. The occipital feathers in the adults of this species become, like those of the cormorant, lengthened into a crest during the breeding season. The entire plumage being of a glossy green, at once distinguishes it from the latter; it is likewise much less, and of a more awkward form. Common on our rocky coast.

Gannet, Soland Goose, *Sula Bassana*. Frequent, and named by the fishermen mackerel gant, at Hartlepool. Rarely follows the course of the Tees inland, perhaps only in the severity of winter. This genus belongs to Cuvier's Totipalmæ, or entire webs. Here we find the hind-toe brought forward, or rather to the inner side, and connected with the three fore-toes by a strong and entire web. Yet with these extraordinary feet, which seem so awkward for walking, or even resting, on the ground, some of this group, *e. g.* the cormorants, often perch on trees, and sometimes inhabit the tops of houses. See Zephaniah, chap. ii. v. 14.

Great Northern Diver, *Colymbus glacialis*. The mature birds are very rare; but the young, the imber divers (*Colymbus immer*) are less so. All the divers possess the property of seeing in the water with considerable acuteness; in fact, some have been noticed, whilst watching for fish, to place their heads under water. The Colymbidæ and the Alcidæ, walk with difficulty, on account of their legs being placed so near their tails; which conformation, however, adapts them more completely to diving.

Black-throated Diver, *Colymbus arcticus*. Rare: the young, or lesser imber, was shot on our coast in January, 1830.

Red-throated Diver, or Loon, *Colymbus septentrionalis*. The speckled diver (*Colymbus stellatus*) is the immature bird, and is common in the winter on our shores and in the river Tees.

Great Crested Grebe, *Podiceps cristatus*. Rare at Hartlepool, according to Sharp's List. But the tippet grebe, or the young bird, "frequents the Tees in severe weather."—*J. G.*

Horned, or Slavonian Grebe, *Podiceps cornutus*. This is the dusky grebe of Bewick. I have seen an individual that was killed on our coast in the winter of 1829-30. The former species and the present have the same kind of crest, and tippet or frill around the neck.

Red-necked Grebe, *Podiceps rubricollis*. Mr. J. Grey informs me, that the one in his collection was found inland, near Elton, in a state of great exhaustion, and died soon after its capture by a dog.

Eared Grebe, *Podiceps auritus*. Here this bird is exceedingly scarce. The only one I know of was shot in January, 1823.

Little Grebe, Dabchick, *Podiceps minor*. Common about Hartlepool; also in Cowpen marshes, where it breeds. The nest, for the size of the bird, is very large and thick. The grebes are very shy and are difficult to come near; they rarely fly, their wings being small and short. It is worthy of remark, that some of the diving birds make use of their wings to assist them in their movements under water. These birds, like several of the ducks, frequently carry their young under their wings. The grebes have no tails: but their feet are extraordinary, and the connecting membranes differ greatly from the true webs of aquatic birds. The tarsi are exceedingly compressed, the fore toes with the claws are flattened, edged by membranes, and connected at their bases. A good representation is given in Mr. Yarrell's work at p. 307, vol. iii.

Common Guillemot, *Uria Troile*. A very common species. The guillemots are said not to be able to fly over land. See Bewick, vol. ii. p. 178, edit. 1804.

Ringed Guillemot, *Uria lacrymans*. "In my collection, shot on the Tees, last winter." — *J. G.* It appears from Mr. Yarrell (Brit. Birds, vol. iii. p. 353) that the natives of the Isle of Grimsey near Iceland, call this species the *hringlangnefia*, which I conclude means ring-long-neb, or ringed long bill; *neb* being a bill in these northern languages. So the same people name the former species *langnefia*: in fact, both species have long bills. I may add, that the carrion crow, and rook, are in this part of England, designated by common persons, the black-nebbed crow and the white-nebbed crow.

Black Guillemot, *Uria Grylle*. Very rare at Hartlepool, according to Sharp's List. In addition to the eggs, down, and feathers, the dung of those sea-birds, which do not of themselves afford food, is of vast importance to man. The last, termed guano, is daily coming more into use as a rich and valuable manure, and is now imported in great quantities from South America (where it was first used) and Africa. But I cannot help thinking, that much British guano — which would be highly beneficial, if not equally so with the foreign — might be obtained on our own coasts, and particularly on those of the more northern parts of Scotland and the adjacent islands. Since this memoir was read, I am glad to find this opinion in a great degree

confirmed by Dr. John Davy. See his "Notice of Guano from the Yorkshire Coast, and from the north Coast of Scotland," in Jameson's 'Edinboro' New Philosophical Journal,' p. 313, for October, 1844. Also, on the "Early History of Guano," refer to the same Journal, p. 410. And at the recent meeting of the British Association held at Cambridge, Mr. Trevelyan observed on the guano of the Faroe Isles, that it is considered quite equal to that from Peru or Ichaboe.

Little Auk, *Mergulus Alle*. The furrows or grooves on the upper mandible of this genus are only indistinct. Mr. J. Grey received a specimen which was shot on the Tees, near Greatham, Oct. 1841. In the same month and year, Mr. Yarrell relates (vol. iii. p. 359) that "Dr. Edward Clarke, of Hartlepool, sent me word, that after a violent storm of wind from N. N. E. which lasted several days, his attention was directed, by pilots and fishermen on the look-out, to various flocks of small black and white birds, then close in shore. There were several hundreds of them, which were unknown to these seafaring men, but which proved to be the little auk. Many were obtained, five or six being killed at each shot, the birds were so numerous. The same thing happened at the same time at Redcar, on the Yorkshire coast, but after two or three days, the wind abating, they were seen no more." This arctic species is generally considered very scarce on our sea-shores, but it has occasionally been noticed even in some of the inland counties.

Puffin, *Fratercula arctica*. Not unfrequent in summer off Hartlepool, where it is vulgarly called Tommy Noddy. The lead-coloured, bright orange and yellow bill, with its peculiar shape, and its deep furrows, gives this bird a most extraordinary appearance.

Razor-bill, *Alca Torda*. Very common in the spring and summer. The black-billed auk of Bewick (*Alca Pica*, Linn.) is the young of the present species. The upright gait of the puffin and auks when walking, causes much surprise and amusement to young sailors, and others who are unacquainted with them. Linnæus well says of the Alcæ, "in terrâ stabulantes, erectè incedunt." The Alcidæ and Colymbidæ usually advance with their tarsi and toes altogether placed flat upon the ground. The plumage of these birds, and in fact, of most of the aquatic species, is close, thick and polished, and being covered or impregnated with oil, with a great mass of down next their bodies, keeps the water from immediate contact with their skin, and so affords warmth and dryness to them, when diving or swimming in that element, which they most delight in and principally inhabit.

Fulmar Petrel, *Procellaria glacialis*. This is a good-sized bird,

but exceedingly rare. The only instance I know of its having been killed on this coast, is that recorded in my former Catalogue, p. 13, No. 105, and which took place at Seaton Snook, in the hard winter of 1823. It is not included in Mr. Selby's Catalogue.

Greater Shearwater, *Puffinus major*. Messrs. Temminck and Yarrell consider the shearwater shot by Mr. G. Marwood in a storm at the Tees' mouth in August, 1828, as the *Puffinus major* of Faber, and I have accordingly continued that name, rather than *Puffinus fuliginosus* of Mr. Strickland.

Manx Shearwater, *Puffinus Anglorum*. At Hartlepool, rare, according to Sharp's List. Frequents, likewise, the seas of the south of Europe. It is worth noticing, that as the feet of these last two genera are somewhat out of the centre, they walk indifferently; but, their wings being long, they fly well. They dive and swim with facility.

Stormy Sea-runner, or Petrel, *Thalassidroma pelagica*. An individual was shot on the Tees, near Stockton, in the winter of 1837. On our sea it is common; and Sir C. Sharp says, at Hartlepool it is "frequently caught by the children in winter." Inhabits not only the seas at Iceland and Scandinavia, but also in France, Italy and Africa. It is often called the storm-finch; and being the least of our sea-birds, it may therefore be termed the sea-wren. The legs are placed more like those of the gulls, and about the centre of the body, but the tarsi are slender and elongated. The toes also, are comparatively of great length, and the whole feet seem splayed and broad. The tail and long wings cause it to have much resemblance to the sea-swallows or terns.

Common Skua, *Lestris cataractes*. "Sometimes killed on our coast, generally after storms." — J. G. The curved bill and strong claws, or talons, of the skuas, enable them to tear and devour birds, and fish, on which they in part subsist; and since their habits are predatory, they are accounted as the Raptores of the Natatores marini, or sea web-footed birds. Wherefore M. Illiger justly gave them the generic title of ληστής, the robber.

Pomarine Skua, *Lestris Pomarina*. "In my collection, killed on the Tees." — J. G. A rare winter visiter, and a native of the arctic circle.

Richardson's Skua, *Lestris Richardsonii*. This is the *Stercorarius parasiticus* of my Catalogue 'Hist. Stock. p. 13, No. 109, and the arctic gull of Bewick. The black-toed gull of the last author (Brit. Birds, vol. ii. p. 236) is the young of this species. Seen with

us mostly in the autumn and winter; Sir C. Sharp adds, that at Hartlepool they are "called teasers;"—I conclude from their pursuing other gulls, and harassing them for the sake of the prey they have caught. I have often in September been entertained in observing the modes of attack and pursuit, practised by these bold and predacious birds. They breed on the coasts of Scotland, but, as far as I can learn, never in this district.

Glaucous Gull, *Larus glaucus*. Here "it is a rare bird, but specimens are generally obtained every winter. Called at Seaton the malle-muck."—*J. G.*; although this term, or malle-moke, a Norwegian name, belongs to the fulmar, according to Pennant and Bewick. Most probably some Seaton sailors, who have been in Norway and known that appellation bestowed by the Norwegians on the fulmar, have imported the word, and by mistake given it to this large white gull, which is by no means unlike the fulmar.

Great Black-backed Gull, *Larus marinus*. The wagel, or *Larus naevius*, of Bewick, is considered by Mr. Yarrell as this species in its immature state. But, according to Mr. Selby's Catalogue, that bird is assigned to the *Larus argentatus*. The fact I believe is, that the young of several kinds of gull are termed wagers in different parts of England. Its eggs are delicious eating, and are said to be like those of the plover, with a transparent white, and an orange or dark yellow yolk.

Herring Gull, *Larus argentatus*. This is the *Larus fuscus* of Latham, of my former Catalogue, No. 108, and the herring gull of Pennant, which is a not unfrequent species.

Common Gull, or Sea Mew, *Larus canus*. The screaming and squealing noise which most of the gulls make, has very probably given rise to their vulgar name of mews. To mew or mewl is to cry like a cat, or squall as a child, both of which sounds, among their varied, harsh, and loud screams, may be recognized. Some species, too, are even said to laugh! The concert produced by a vast assemblage of the different Laridæ in autumn or winter, is most discordant and deafening; and no one, who is a stranger to the barer parts of our wild sea-shores in the north, can form any conception of it. In stormy weather, and especially in winter, these gulls proceed to marshes and fields far inland. Having lived much close to the Thames, in the Temple, I have frequently observed gulls flying about the river, even in the very centre of London; they appear quite regardless of all the noise and bustle of steamers, and the numerous shipping and craft always sailing up and down. They are useful when

kept in gardens, since they devour worms with great avidity. The *Larus hybernus*, winter gull of Sharp's List, is only this bird's young.

Ivory Gull, *Larus eburneus*. An individual of this rare arctic species was shot at Hartlepool in March, 1837. I had the pleasure of communicating to Mr. Yarrell this fact in my 'List of Water Birds of the County of Durham,' in the year 1839; yet he has overlooked it, as he makes no mention of any capture of this handsome gull on the English coast. Mr. J. Grey writes me word, "the only ivory gull I ever saw, was one which was found dead in Cowpen marsh; it was sent to me, but was too much decayed to admit of its preservation, but the plumage was sufficiently perfect to show the specimen." The above are, I believe, the two earliest examples which have yet occurred in England. Since this memoir was read, Mr. T. Allis has stated in his 'Report on the Birds of Yorkshire,' that an ivory gull had been shot off Scarborough.

Kittiwake Gull, *Larus tridactylus*. The immature is the tarrock.

Black-headed Gull, Pewit Gull, *Larus ridibundus*. Not uncommon in the winter. It is one of the many sea-birds that resort to the larger lakes in Switzerland during summer. It has received its specific appellation from its singular scream; so, one of the hyenas is called vulgarly, the laughing hyena.

Little Gull, *Larus minutus*. "In my collection, shot on the Tees."
—J. G.

Sandwich Tern, *Sterna Boysii*. This tern visits us in summer, and is inserted in Sharp's 'List of Hartlepool Birds.' Common to Africa and America. The eggs are very large compared with the size of the bird.

Common Tern, Sea Swallow, *Sterna hirundo*. The terns not only present strong similitude to the swallows (*Hirundinidæ*) in their form, quickness and strength of flight, but also in their being alone seen during the spring and summer months; and they are all birds of passage. Mr. Yarrell says (vol. iii. p. 402) of the arctic tern (*Sterna arctica*), "on the coasts of Durham and Northumberland it is plentiful;" certainly on this part of the Durham coast I have never either seen it, or heard of its being observed by any one; although, according to Mr. Hewitson, it breeds on Coquet Island; yet it is remarkable, that no specimen has been discovered in this district. And as Mr. A. Strickland has informed me that it is common on the Yorkshire coast near Scarborough, Burlington, &c., it has most likely hitherto been confounded in this vicinity, with *Sterna cantiaca* and *Sterna hirundo*. The three species, however, are perfectly distinct.

Lesser Tern, *Sterna minuta*. In summer it mostly inhabits the sandy beach near the Tees' mouth, and Seaton Point.

Since the feet of the Laridæ are fully *in æquilibrio*, all the kinds walk with ease and agility; they fly admirably, swim well, but seldom or never dive.

Obs.—In conclusion I will remark, that of late years anatomy has greatly contributed to make us acquainted with a more correct knowledge of the organization of birds. And the examinations of the windpipes and tracheal labyrinths and of the sterna, have thrown much new light upon many species. And indeed I may safely state, that the depth and variation in the keel of the breast-bone, and the entire sternal apparatus, afford accurate characters whereby the principal habits of birds may be ascertained, as they clearly point out the forms best adapted to flying, swimming, running and other functions. But as regards the anatomical investigation of the cervical vertebræ, and likewise of the variations in the number of the ribs, much more is required to be done; because these organs, I apprehend, will, if duly studied, tend to distinguish several doubtful birds, and determine, with other more obvious and external characters, the true station which they ought to occupy in the great 'System of Nature.'

JOHN HOGG.

Norton House, Stockton-on-Tees.

Notes on the Birds of Belgium. By M. JULIAN DEBY.

(Continued from page 1132).

DIVISION VI.

Group *c*. Water-birds remaining during winter and leaving in spring.

Oyster-catcher, *Hematopus ostralegus*. This bird is not uncommon on our shores, where it remains until late in spring. It occasionally follows up the banks of our rivers in spring and autumn. It nestles commonly in Norway, and, according to Mr. T. Edmondston, jun., in Shetland, but I believe seldom if ever with us.

Woodcock, *Scolopax rusticola*. A common bird with us during the shooting-season. I have placed it in the present group, though it leaves the country when the frosts are very intense.

The woodcock travels by night, singly or in couples, and haunts low and damp woods and hills. It is easy to know whether there are any woodcocks in a wood by seeking for a spring or marshy spot, and

looking round these for its excrements, which are large, white and inodorous. The woodcock generally flies up when the dogs are nearly on it, but does not take long flights, plunging heavily under cover again, and then running for a considerable distance. In the month of April, when they leave us, numbers are killed by watching for them at dusk, at the end of some alley leading out of a wood which they are known to frequent; generally, between 7 and 8 o'clock, they are heard coming, solitary or in couples, crying *pede, pede, pede!* and are then shot. Our sportsmen distinguish several varieties of woodcocks, but I have as yet discovered no difference between them and the type.

I have reason to suppose that a few birds nestle in some retired parts of the country.

Velvet Scoter, *Oidemia fusca*. This, of all the duck tribe found on our coasts, is the most wary and difficult of approach. It is not common.

Gannet, *Sula alba*. Common on our coasts in winter. Never nestles. The greater number seen here are most probably British birds, as I see that the gannet leaves England just at the time it appears in this country. This is one of the water-birds whose habits are the best known.

Great black-backed Gull, *Larus marinus*, and

Common Gull, *Larus canus*. Both very common on our sea-shore, and follow up our rivers after severe storms.

Smew, *Mergus albellus*. This pretty bird is not uncommon with us; it seems to belong to my Group *e*, but I have not yet been able to satisfy myself fully on that subject.

Common Scoter, *Oidemia nigra*. Common at sea and at the mouth of rivers, scarce inland. It is sometimes seen in such vast flocks on our shores, that the sea seems covered by a cloud, which skims the surface of the waves. It is wonderful how a bird so ill fitted for flight, can perform long migrations along the northern coasts of all the middle countries of Europe.

Scaup Duck, *Fuligula Marila*, and

Tufted Duck, *Fuligula cristata*. Both exceedingly common in winter, the first on our shores, the second on our marshes and lakes. Both accidentally occur on rivers and ponds of the interior.

White-fronted Goose, *Anser albifrons*. Common in winter at the mouth of the Scheldt. Numbers are consumed by the towns of Antwerp and Brussels. Very scarce inland, and when found there, very shy and difficult of approach within gun-shot.

Sheldrake, *Tadorna Vulpanser*. Common in winter towards the sea; scarce inland.

Gadwall, *Anas Strepera*. Comes with the first frosts, leaves us in March and April. Common on our marshes, rivers and lakes. This duck is not difficult of approach, and great numbers are annually shot; but its movements are so quick that this is no easy matter, as it often dives between the flashing of the gun and the receipt of the shot.

Erratum. — By some unaccountable mistake of mine in the last number (Zool. 1071), I have said in speaking of the moorhen,—“The greater number *leave* us during the first fine days of spring;” this should have been, “*come to us* during, &c.”

JULIAN DEBY.

Laeken, September 12, 1845.

(To be continued).

Arrival of Summer Birds of Passage at Devonport. Inclosed I have forwarded a list of arrivals of most of the summer birds which visit this neighbourhood. You may probably think it strange to see so many recorded on one day (May 5), this season; but it was the produce of a walk of nearly thirty miles. The list should read horizontally, thus, the wheatear arrived in 1840 on March 28, in 1841 on March 18. I regret that the list is not quite so complete as it should be, but considered it might be interesting to some of your readers. Of the arrivals for the seasons marked thus ... I have no dates entered.

	1840.	1841.	1842.	1843.	1844.	1845.
Wheatear	Mar. 28	Mar. 18	Mar. 13	Mar. 20	Mar. 17	Mar. 24
Chiff-chaff.....	April 3	25	22	26	23	31
Willow-wren.....	14	April 21	April 21	April 16	April 14	April 7
Tree Lark	17	27	21	13	17	16
Blackcap	17	27	21	16	13	16
Swallow.....	24	18	26	15	15	14
Whitethroat	24	27	26	19	22	May 1
Yellow Wagtail	27	May 4	11	...	May 6	8
Redstart.....	...	...	May 2	...	April 17	5
Cuckoo .....	...	April 27	April 26	April 19	May 1	5
Sedge-warbler	May 1	25	...	...	April 25	5
Wood-wren .....	...	...	May 2	...	May 2	5
House-martin .....	...	May 3	9	...	2	5
Spotted Flycatcher ...	May 10	...	2	...	2	...
Red-backed Shrike ...	12	May 15	13	...	2	2
Swift	7	3	9	...	...	April 27
Grasshopper Warbler..	...	...	...	...	May 9	...

The grasshopper warbler is very rare; I am not aware of more than two being killed in the neighbourhood for many years. — *Wm. Harris Row*; 33, *Fore St., Devonport*, September 23, 1845.

Occurrence of the smaller Eagle (Aquila naviã) in Ireland. An eagle new to these countries having been killed in this (the southern) quarter of our island, I thought a notice of its occurrence would be interesting to the readers of 'The Zoologist.' The bird in question is an immature specimen of "the smaller eagle" (*Aquila naviã*, Linn.), and was shot some time in 1st month of the present year, on the estate of the Earl of Shannon, near Youghal, Co. Cork, by one of the gamekeepers, who gave it to a friend of mine, Samuel Moss, of Youghal, by whom it was set up, and whose it now is. It is stated that another bird, similarly marked, but of a lighter shade of brown, was killed in the same place a few days previously, but was unfortunately not preserved: both had been observed for several weeks, frequenting the neighbourhood in which they were killed, and were generally noticed sweeping over the low grounds there. This one was shot in a fallow field, in the act of feeding on a rabbit it had just killed. I should state that the bird is in that state of plumage in which it is called "the spotted eagle," which was, I believe, until lately, considered to be a distinct species, as in the case of our own ring-tailed eagle.—*Robert Davis, jun.*; *Clonmel*, October 7, 1845.

Occurrence of the Osprey in Devonshire. Ospreys are frequently seen on the Exe, and have been taken in large gins. One has been observed for the last month, but has hitherto escaped being captured. — *F. W. L. Ross*; *Broadway House, Topsham, Devon*.

Supposed occurrence of the Dartford Warbler at Lytham, Lancashire. From some remarks in a letter containing notices of the occurrence of rare birds in Leicestershire, given in Yarrell's British Birds, I find that the Dartford warbler has occurred in this county within the last two years; but this is the most northern locality in which it has been obtained. In Provence, it is observed to frequent cabbage-gardens, whence probably its name of *pitte-chou* or *pit-chou*. On or about the 27th of August, in such a locality, namely, a half-grubbed-up potato and cabbage garden at Lytham, on the Ribble, did I see three or four young birds, in company with the old ones, very actively feeding on the ground which had been cleared from the vegetables. They are of a slender elegant form, very active and restless. I should not have known what they were, if I had not noticed the chesnut colour on the back and sides of the male bird, all the others being much lighter in colour, and without the chesnut marks about the breast and neck. I mention this circumstance, because of its more northern latitude, about $53\frac{1}{2}$ degrees.—*Thos. Webster*; 96, *Ormond St., Manchester*.

[I have headed this 'supposed occurrence, &c.' because I think the evidence that the birds in question were of the species named is not quite satisfactory.—*E. N.*]

Occurrence of the White-winged Crossbill at Exmouth. As I was walking along the coast at Exmouth, on the afternoon of the 17th instant, during a strong wind from the south-west, which had continued for several days, I picked up a dead bird, which had apparently just been washed ashore. It was covered with sand and dirt, but after washing out the salt water, and cleaning it, it proved to be but little injured. On my arrival in town, I took it to Mr. Yarrell, and found that it was a white-winged crossbill. It is a male bird, and has not completed its autumnal moult. The plumage agrees with that of the male in his second plumage (Yarrell, Brit. Birds, ii. 43), but has a few of the greenish yellow feathers of the younger bird mixed with the crimson on the back.—*E. B. Fitton*; 53, *Upper Harley St., Cavendish Square*, Sept. 20, 1845.

Occurrence of the Snow Bunting near Aylsham. As I was driving to Blakeney last Tuesday, the 23rd, I observed a fine specimen of the snow-bunting (*Plectrophanes nivalis*) on the road. It was very tame, and allowed the gig to approach within a few yards before it took flight, when it flew only a few yards, and waited quietly while I got out of the gig, loaded my gun, which I luckily had with me, and shot it. It was in very fine plumage. I am not aware that it has been observed so far south at such an early period of the season. There had been several sharp north-easters just before, which had probably brought it over.—*Henry T. Frere; Aylsham, September 25, 1845.*

Siskins in confinement. Two male siskins have been kept by me for nearly two years. Their song is agreeable, and their playful and interesting habits render them the most amusing of our smaller cage-birds. A small flight visits the banks of our river every spring, and may easily be taken with a hoop net: they are perfectly happy, and feed directly they are caged.—*F. W. L. Ross.*

Occurrence of the Nightingale in Devonshire. It has been frequently asserted that the nightingale is not to be found in Devonshire. I had one which was shot in Stoke wood, near Exeter; and I understand they were known to frequent the same locality for twenty years. The specimen was reluctantly killed to satisfy the doubts of sceptics. During the past summer, these delightful songsters have been heard at Topsham. Between the hours of 10 and 12, on a calm clear night, I had the pleasure of hearing two: their song was rich and brilliant, and continued long after I retired to rest.—*Id.*

Beak and Legs of the Avocet. I have examined the bill of the avocet, and from the smooth appearance it presents on the convex part of the under mandible, consider the bird seldom if ever uses it on the sands, which would wear it away, or give transverse striæ to its under surface. It has always been seen, when feeding, to be *wading near the edge of the water*, where the small sand-hoppers and other insects are most abundant; by working its bill horizontally from side to side, and sucking at the same time, a plentiful meal can be obtained. Few who have seen this bird in collections only, can form an idea of the beautiful colour of its legs and feet. When recent, they are a fine light blue, resembling the most delicate French kid, but change shortly after death to dusky black.—*Id.*

Occurrence of the Alpine Swift (Cypselus alpinus) near Cambridge. I was out shooting with a friend in some fields near Cambridge, on the 26th or 27th of May, 1844, when I saw a bird which I supposed to be a swift flying towards us, and as it approached my companion, he fired at but missed it. The report however caused it to swerve in its course, so that the brown back and white belly were distinctly visible. I immediately went to the collection at the Philosophical Museum, and after examining the specimen there, I felt convinced that the bird I had seen was the real alpine swift. Four months after this, I was talking about the birds in the neighbourhood of Cambridge to a friend who has a very fair knowledge of birds, and without my introducing the subject, he told me he thought he had seen a white-bellied swift flying about in the fields near Granchester, about a mile and a half from Cambridge; and upon comparing notes, we found that he saw the bird about a week after my companion had fired at it: so that it is probable we both saw the same bird. It is not likely, I think, that two persons seeing a bird at different times, and both agreeing in their description of it, could be entirely mistaken in their conclusion: but of this I will leave you to judge.—*E. B. Fitton; 53, Upper Harley St., Cavendish Square, Sept. 20, 1845.*

Partial Migration of Birds, (Zool. 983). An instance of this kind I had the pleasure of seeing on the 19th of September, 1845. On accidentally looking out of the

window, I saw a large flight of swallows high up in the air, moving from the north towards the south, over the town of Manchester, in which direction they all disappeared. Some days previous to this transit, the weather had been wet and tempestuous; would that be cause enough to make them leave the scene of their nidification so early as this date, and so repair towards the coast? Perhaps the rough weather had caused a scarcity of insect food, and so caused them to seek a fresh feeding-ground elsewhere. This is only conjecture. I thought the occurrence so singular, that I have ventured to send you this note on the subject. I may add, that I think the swallows and martins more numerous this year than the last.—*T. Webster*; 96, *Ormond St. Manchester*.

[The gatherings of swallows in the autumn, although interesting in itself, does not exactly come under the head of partial migration, as intended at p. 983. My observations at that place rather referred to birds not acknowledged as migrants. I regret I was not more explicit.—*E. N.*]

On the Migrations of Birds. I may perhaps be excused if I offer a few observations on some of the migratory species of birds, having been led to do so by the remarks of the Rev. J. D. Banister, of Pilling, (*Zool.* 1063). That gentleman marvels at the delay of the woodcock and fieldfare with us so long after the arrival of the swallow; if Mr. Banister takes a walk by the sea-side in the last week in May, or even the first in June, he may frequently hear the *yelp, yelping* note of the sanderling, or possibly he may see a small dense flock of them skimming swiftly along the surface of the water; when suddenly wheeling up into the air, they display the snowy under surface of their bodies, flashing like a white sheet, and again disappearing, for their flight is rapid, vigorous and unsteady, now sweeping upwards, and again descending like a rushing torrent. I have shot the sanderling as late as the 6th of June, and have seen them later, both on the banks of the Solway and the Ribble; and yet these birds are said to breed still further north than either woodcock or fieldfare. I have also observed in company with the sanderling, as late as the middle of May, large flocks of ringed plovers (*Charadrius Hiaticula*, Linn.) that have not yet paired; while, scattered along the shore, in favourable situations, might be seen pairs of the same species, whose nests contained their full complement of eggs, some of them nearly hatched. It seems, therefore, that even the same species vary much in the time appointed for breeding. It is, I believe, a generally received opinion, that migratory birds return to the places where they were bred; possibly those ringed plovers still in flock had been bred far north, and instinct had taught them to restrain the desire of propagation, until the weather was favourable for their reception in their native breeding-ground.—*James Cooper*; 132, *Victoria St., Preston, September 22, 1845.*

On the Noise made by the Snipe. When looking over the number of 'The Zoologist' for the present month (*Zool.* 1066), I noticed some observations by Mr. W. Bree, jun., who, when speaking of the whorring noise produced by the snipe, says that the birds were certainly upon the ground, which argued against the opinion of the game-keeper, who said that the noise was produced by the wings. Having spent much time in the pursuit of birds and their nests, I have had many opportunities of observing the snipe in the breeding-season; and I beg to assure Mr. Bree, that the noise is not only produced by the wings of the bird, and only when it is upon the wing, but by a particular mode of flight. The bird, while wheeling about over head, suddenly throws itself partly on one side, and descending towards the ground at a very acute angle, moving its wings with great vigour, it passes through the air with nearly double the ordinary speed for the space of twenty or thirty yards; when again changing its posi-

tion, it ascends smoothly and rapidly, with scarcely moving the wing, probably being propelled by the impetus produced by the rapid descent. It is while the bird is descending, that the whirring noise is produced, and so soon as the bird turns to ascend the noise ceases, until when, after a few turns through the air, a similar manœuvre is gone through, and a similar noise produced. This I have observed for an hour together, while looking for their nests.—*Id.*

Sea-birds at Beachy Head. Being on the beach underneath Beachy Head, on Whit-Monday, 1837, I observed three or four men on the top, engaged in taking the eggs of the willock or guillemot, at the part of the cliff which is the highest and most perpendicular, being about five hundred and sixty feet above the level of the sea, which at high water washes the base of the cliff. It was not long before one of the party, John Hunter, descended about midway, and seeing several of the willocks sitting on one of the benches, or projecting ledges, of the chalk cliff, he signalled to his companions on the top to let him down a gun, which they did, he all the time being suspended on the rope, and swinging round within a foot or two of the cliff: but as soon as he got himself steady, he shot and killed two of the willocks. He then got on one of the benches for the purpose of collecting the eggs. These men often succeed in getting twelve or fourteen dozen of eggs in the morning, and at the time I am writing, got a ready sale for them at sixpence each. The men are lowered down the cliff by means of the derrick, which is simply a pole, with a wheel in one end of it, for the rope to go over, and run about two feet over the edge of the cliff, and in the other end is a hole bored, through which an iron bar is driven firmly into the ground, to keep it steady. The derrick is a familiar machine to the smuggler, as it enables him to get his tubs very expeditiously from the bottom to the top of the cliff, which is done by several of the men taking hold of the rope and running right out with it. In the year 1838, I obtained from these men a couple of the young of the peregrine falcon, which are annually bred there, but never more than two broods are known to occur in one year; and I have heard several persons acquainted with the locality say it is their belief, that they are the same identical parent birds that have bred there for the last quarter of a century. The birds which I obtained, I brought up until they acquired their full plumage, and they were splendid and beautiful birds, being male and female. I afterwards disposed of them to Wm. Borrer, Esq., of Henfield. To show the great docility of those birds, I will relate an occurrence which took place at Brighton, for it was here I brought them up. My man was in the habit of feeding them, and they would come and sit on his hand when he called them. One of them accidentally got out one morning and flew away, and after searching all the morning, I gave him up for lost; but having occasion to send my man near St. Peter's church late in the afternoon, he caught sight of the falcon sitting upon one of the projecting ornaments of the pinnacle which rises from each corner of the tower of the church; and he immediately ascended to the top of the tower, but the bird was then seven or eight yards above him, but calling him in his usual way, the falcon descended to him, but being so perpendicularly under, he could not alight upon him, but took a sweep round the church and St. Peter's place, and came and settled upon his hand.—*Thos. Thorncross; Brighton, September 27, 1845.*

Occurrence of the Spoonbill in Cornwall. On the 8th instant an immature example of the spoonbill was obtained within a short distance of the Land's End. The occurrence of this bird on several occasions in this county, within the last few years, and in some instances, in flocks, has caused an abatement of interest in it as a curiosity; but

as the visits of this species may be regarded as uncertain, and made frequently at distant intervals, I think it right to offer any occurrence of this singular bird to the records of your journal. One point I would beg to call your attention to, and it is that there appears to be a migrational movement of this species at this period of the autumn, probably from Holland, where they breed; for I observe that the flock of eleven which I reported to you as having been seen in this neighbourhood in 1843 (Zool. 364), were first seen on the 13th of October, in that year. — *Edward Hearle Rodd; Penzance, October 14, 1845.*

Hearing of Fishes. I noticed a circumstance the other day, that seems to me to go far to prove that some fish at least do not possess the sense of hearing. I was fishing during a rowing-match; it was a sunny day, and there was a shoal of bleak near the surface of the water, and though some small cannon on an island about four hundred yards from the spot were repeatedly discharged at intervals, they took not the slightest notice, and I caught one in the midst of the firing. — *Geo. Guyon; Richmond, September 26, 1845.*

Correction and addition to Mr. King's Note on Mollusca, (Zool. 1039). I was sorry to find, on receiving the August number of 'The Zoologist,' that a mistake had been made (I suppose by my own inadvertence) in the name of one of the mollusks of which I forwarded to you an account, as found in Cornwall. The species of Arion which I found was not *A. hortensis*, but *A. ater*. It is very common in this neighbourhood, but I have not yet found any of the *black* colour. If they are all to be reckoned varieties of *A. ater*, it is curious that in this neighbourhood every variety of colour should be found, except that which may be considered typical. I have much pleasure in adding to the list *Zonites pygmæus* and *Pisidium obtusale*. Of the former I have found but one specimen, in a wood under Polwhele, near Truro. The latter I have found in several situations, near Truro; and in a turf-pit at the foot of Tregal Down (near Launceston), where they were very abundant: also at St. Stephns's, near Launceston, where, in a boggy place, I found them clinging to the stones which I raised from the water. This species appears to live very little under the mud. I would notice also the abundance of *Pisidium amnicum* in the Exe, near Exeter. My sieve or scoop will hold about a quart of mud, and in the proceeds of one scoop I counted upwards of forty. At the same scoop I obtained a specimen of *P. pulchellum*; and in a small pond adjacent, I obtained a specimen of *P. obtusale*. — *Robt. L. King; Grammar-School, Truro, September 3, 1845.*

Captures of Lepidopterous Insects at Lewisham.

Cnephasia Icterica, July 4 to 11, among grass, in abundance, in our own fields. I had never before met with it.

Cnephasia Longana, one, July 4, one, July 5, one, July 6, one, July 19, among grass. This I had not taken at Lewisham before.

Simaethis lutosa, July 4 to 14. This absolutely swarmed on apple-leaves. I had only two previously, taken in 1843.

Semasia Pomonella, one, July 4, apple-leaf.

Leucania Comma, one, July 4, attracted by light. This is not a common insect here.

Polia dysodea, two, July 5, one, July 23, both attracted by light.

Hadena Cucubali, one, July 5, one, July 25, both attracted by light.

Ægeria Mutillæformis, three, July 6, two, July 7, one, July 9, two, July 13, one, July 14, two, July 16, on apple-leaves.

Argyromiges Clerckella, one, July 6, five, July 13, on apple-leaves.

Bradyepetes amataria, July 9 to 26, eight specimens, beat out of hedges.

Pseudotomia strigana, one, July 9, attracted by light.

Lozotænia costana, one, July 12, one, July 26, grass.

Acompsia unitella, one, July 13, in the house.

Anacampsis sequax, one, July 13, apple-leaf.

Callisto guttea, one, July 13, apple-leaf.

Carpocapsa Scopoliiana, one, July 13, grass.

Eupithecia simpliciatata, one, July 15, one, August 6, attracted by light.

Agrotis corticea, one, July 17, attracted by light.

Ennomos flexula, one, July 17, beat out of ivy, one, August 12, attracted by light.

Graphiphora crassa, one, July 19, lime-blossoms.

Apatela Aceris, one, July 20, fir-tree.

Polia serena, one, July 20, same fir-tree.

Acronycta megacephala, one, July 23, same fir-tree.

Xanthosetia Zægana, July 21 to

Timandra imitaria, one, July 24, hedge, flying.

Nudaria mundana, one, July 24, hedge, flying.

Zeuzera Æsculi, a pair, brought to me.

Argyrolepia margaritana, one, July 25, flying among grass.

Batia lunaris, one, August 1, rose-leaf, two, August 3, trunks of trees.

Anacampsis Mouffetella, one, August 2, house.

Orthotænia marmorana, two, August 3, beat out of hedges.

Ania emarginata, one, August 4, attracted by light.

Ptilodontis palpina, one, August 8, attracted by light.

Anacampsis nivella, one, August 10, beat out of a hedge.

Peronea Borana, five, August 10 to 14, beat out of hedges.

Lytæa umbrosa, common, August 12 to 26, on the flowers of *Glyceria fluitans*.

Xerene adustata, one, August 25, attracted by light.

Lepidocera mediopectinella, six, August 24, twenty-eight, August 31, among grass.

This only flies in the middle of the day, after 4, P.M., I could not meet with it.

Drepana hamula, one, August 28, attracted by light.

Cochylis roseana, one, August 28, attracted by light. The species that I took at Airthrey, I find is *subroseana*.

Gortyna micacea, one, August 28, attracted by light.

Argyromiges Rayella, one, August 30, in a field, flying.

Are all the *Argyromiges* double-brooded? It would seem so. *Cramerella* and *Harrisella* are. *Gracillaria meleagripennella* and *Porrectaria albicostata* have also appeared again.—*H. T. Stainton ; Lewisham, Kent, September 6, 1845.*

Captures of Lepidoptera in Scotland.

- Polyommatus Artaxerxes*, one, Dumyot, July 27.
Hepialus velleda, sixteen, Torwood, July 5.
Charæus Graminis, four, Dunoon, Argyllshire, August 17 and 20.
Rusina ferruginea, four, Boyd's Planting, July 16.
Agrotis fumosa, six, Carron, August.
Graphiphora — ? one, Dumyot, July 27, on a rock.
Graphiphora festiva, Torwood and Carron, at sugar, abundant in July.
Polia advena, Carron, plentiful, at sugar, and flying at flowers, in company with the *Plusias*, July 5 to 14.
Polia bimaculosa, Torwood, at sugar, abundant, July 4 to 18.
Polia herbida, one, very fine, Torwood, at sugar, July 7.
Polia occulta, one, much wasted, Torwood, at sugar, August 12.
Acronycta Rumicis, three, Torwood, at sugar, July 7.
Thyatira Batis, one, Boyd's Planting, July.
Xanthia fulvago, Carron, August, abundant.
Gortyna micacea, Carron, August, abundant.
Gortyna Petasitidis, one, Carron, August.
Acosmetia arcuosa, three, Torwood, July 12.
Ellopia fasciaria, four, Torwood, July.
Cidaria olivata, five, Dunoon, August 2.
Electra testata, Dunoon, August, abundant.
Acidalia fumata, one, Torwood, July.
Anticlea albana, four, near Torwood, July 18.
Cnephasia Penziana, four, Torwood, end of July.
Orthotænia subsequana, two, Dunoon, on the top of the hill, August 24.
Crambus margaritellus, five, Dunoon, August 2.—*Id.*

Captures of Lepidoptera on the Downs, near Stoa's Nest and Godstone Road.

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| July 24. <i>Scotosia Rhamnata</i> , one. | July 28. <i>Anchylopera Comptana</i> , two, off furze-bushes. |
| <i>Spilonota Argyrana</i> , one. | <i>Argyrolepis decimana</i> , one. |
| <i>Semasia Grossana</i> , one. | <i>Macrochila parenthesesella</i> , three. |
| <i>Cnephasia curvifasciana</i> , one. | <i>Harpagus cinetella</i> , one, off juniper-bushes. |
| <i>Anchylopera Comptana</i> , one, and saw others. | Aug. 6. <i>Macrochila parenthesesella</i> , two, off juniper. |
| <i>Anacampsis contigua</i> , one. | <i>Pseudotomia Jacquiniæ</i> , one, off hawthorn. |
| <i>Anacampsis Mouffetella</i> , one. | <i>Sericoris quadrana</i> , seven, flying on the grass. These were rather plentiful, but the specimens were mostly much faded. |
| <i>Apheloesia triatomea</i> , one, off furze-bushes. | |
| <i>Tinea ustella</i> , one. | |
| <i>Cochyliis rutilana</i> , one, off juniper. | |
| <i>Phycita nebulælla</i> , one, off this-tles. | |

Captures of Lepidoptera near Bristol. With a list of this year's captures, I send a few facts that have come under my notice, and which may explain the supposed periodical appearance of certain insects. In the spring of 1844, I took three broods of *Eriogaster lanestris*: at the usual time they spun their cases, and in March of the present year seven only of the moths came out. I opened a few of the cases this morning, and found the chrysalides still alive. A few fine days at the end of February or

the beginning of March next, may cause them to emerge in their perfect state; but should they pass over that time unchanged, they will remain so until the following spring: indeed, Mr. House, of Messrs. Garraway's nursery, Redland, who has been very successful in the breeding of insects, assured me that he has had this moth break its chrysalis after the almost incredible period of six years. My young friend, Philip H. Vaughan, of Redland, has a chrysalis of *Sphinx Ligustri*, which has passed by the period of its final change, and probably awaits the warmth of another June. Many of your readers are no doubt acquainted with the length of time that frequently elapses from the formation of the cocoon to the appearance of the moth of *Cerura Vinula*. I have kept them for three years before I have been gratified with the sight of their transformation into the winged fly. The pages of 'The Zoologist' record the captures of some specimens of *Colias Edusa* and *C. Hyale* most years, while frequently they are seen in great numbers. May not similar (atmospheric?) causes affect these, which have affected *Eriogaster lanestris*, *Sphinx Ligustri* and *Cerura Vinula*?

- Hepialus sylvinus*, August 6, two specns. *Pyrausta Anguinialis*, June 14, August
Heliophobus Popularis, August 30, five. 16, D. D.
Tethea ridens, April 12, one, wall. sordidalis, July 15, D. D.
Phytometra ænea, June 14, D. D. *Scopula hyalinis*, July 15, D. D. abundt.
Hemithesia vernaria, July 23. *Pyralis nemoralis*, June 16.
Pericallia Syringaria, August 1. *Crambus Pinetellus*, August 23, D. D.
Charissa dilucidaria, July 19. *Phycita spissicella*, August 18.
Eupithecia V-ata, April 27.* *Eudorea Pyratella*, June 14, D. D.
rufifasciata, April 27. *Adela Frischella*, May 9, three.
strobilata, July 23, plentiful. cuprella, May 9, three.
Lampropteryx suffumata, April 29. DeGeerella, June 16, abundant.
Chlorissa imitaria, July 23. *Depressaria characterosa*, August 30.
emarginata, July 23. *Anacampsis rhombella*, June 14, D. D.
Drepana hamula, June 16. Alesella, June 14, D. D.
Antithesia Salicella, July 15. luctuella, June 14, D. D.
Spilonota nubiferana, July 3.† Tremella, July 15.
Pseudotomia Jacquiniiana, July 29. *Porrectaria ornatipennella*, June 21.
Compositella, August 20. Garden, upon the flowers of the *Coreopsis*, *Argyrosetia I-V-ella*, July 15, one.
seventy specimens. *Cerostoma Hesperidella*, July 15.
Anchylopera obtusana, June 21, D. D. *Tinea ustella*, July 15, D. D. one.
Lundana, May 9, August 15. *Lampronia Luzella*, May 9.
Cochylis marmoratana, July 15, D. D. corticella, June 14, garden, on the
Eupæcilia tesserana, June 21, D. D. raspberry.
maenlosana, August 16, D. D. subpurpurella, May 9, two.
Teras effractana, August 15, variety. *Pterophorus tetradactylus*, June 21.
didactylus, June 21, D. D.

The specimens, except where marked D. D. (Durdham Down, near Bristol), were taken at Brislington.—*John Sircom, jun.*; *Brislington, near Bristol, Sept. 6, 1845.*

Occurrence of Colias Edusa at Darenth. Three beautiful specimens of this favorite butterfly were taken on the 6th of July, in a clover-field at the back of the Fox and

* Is not this unusually early?

† May not this pretty moth be a variety of *Spilonota Cynosbatella*?

Hounds, just out; and several others at the new Victoria Park, Hackney. They have been taken near that spot for some years past.—*H. J. Harding*; 1, *York St., Church St., Shoreditch.*

Capture of Colias Edusa near Chenies, Bucks. Seven specimens of this butterfly were captured near this place in September, 1844, six males and one female. Several others were also seen, one female was caught this year. I also caught two specimens at Walton-on-the-Naze, Essex.—*J. Taylor*; *Chenies, Bucks.*

On the Influence of the various Rays of Light upon the Caterpillar of Vanessa Io. Having seen a statement that tadpoles, supplied with every necessary of life, but entirely secluded from light, are arrested in their development, and merely increase in size, without undergoing the usual transformation; I was led to try a similar experiment upon caterpillars. The remarkable effects, also, of the different rays of light upon vegetation, caused me to subject a number of specimens to this influence. I employed in this experiment two breeding-boxes; the one divided into four compartments, covered respectively with yellow, red, blue and green glass; the other box had two compartments, the one perfectly darkened, the other covered with ordinary glass. As a subject for the experiment, I saw it would be advisable to select some species not much given to vary, in order that any result obtained might be the more manifest. A brood of *Vanessa Io* that fell into my hands about the middle of July, seemed suitable for the purpose, and I distributed them in the yellow, blue, dark and light compartments; they having at the time just changed their first skins. The feeding was conducted with the greatest equality, that no other cause than the difference of light might operate upon them. Sometimes I thought that those under the yellow light looked less healthy than the rest; but I cannot say this decisively. In the time of their making up I could perceive no difference. In their emerging from the chrysalis there was, however, a marked distinction; those in the dark all made their appearance first (August 12 and 13), and were all out before a single specimen had appeared in the other three cells. Next came those in the common light (August 14 and 15); then the blue and yellow together (August 15—20). Those bred in the dark were in general larger than the rest, and their colours seemed to me brighter; many specimens from the yellow cell were small, and their antennæ crippled. The results were thus less decisive than I had expected, and differed considerably from my suppositions, as I had looked for the yellow first, and the dark last. I do not by any means regard the matter as decided, but intend to repeat the process with other species of caterpillars, and with a few additional precautions. I noted down also, with some care, their hours of emerging, in order to ascertain how far these would agree with the hours stated by *MM. Quetelet and Laycock*, as so decisive in the animal economy, namely, 8—10 and 4—5; but could not perceive any marked distinction.—*J. W. Slater*; *Fairfield, September 11, 1845.*

Capture of Sphinx Convolvuli at Driffield. A very fine specimen of *Sphinx Convolvuli* was lately taken at Driffield, having flown into the window of the Red Lion hotel there; and was given to me by the landlady, Mrs. Johns, who had kindly preserved it for me. Unfortunately, I was from home at the time, and the insect being put under a glass, it rubbed off the ends of its wings, having been a remarkably large and fine specimen. When first taken, it was covered with down, they told me; and I have no doubt, from its present appearance, that it had but just come out of the chrysalis. The neighbours saw it flying, and told Mrs. J. that a bat had gone in through the window.—*F. Open Morris*; *Hafferton Vicarage, September 19, 1845.*

Capture of the Death's Head Hawk-moth near Newcastle. A male of the death's head hawk-moth (*Acherontia Atropos*) was taken in a dwelling-house at Long Benton, on the 15th instant. The peculiarly loud squeaking sound of this insect much surprised its captor; who states that it attempted to puncture with its proboscis the hand in which it was captured.—*Thos. John Bold*; 42, *Bigg-Market, Newcastle-upon-Tyne, September 20, 1845.*

Habits of Endromis versicolor. As I was passing an alder-bush on the 30th of June, I observed a number of caterpillars feeding on one of the leaves. On being disturbed, they all threw up their heads and bent their bodies in the way so frequently practised by the larvæ of many species of *Tenthredo*. They were eleven in number, and all feeding on one leaf; and I found the egg-shells, fourteen in number, arranged in a double row round one of the twigs. On taking them home, I found them all clustered together, with the head and upper part of the body bent back: they all fed together, and ceased feeding at the same moment. All of them sickened to change their skins at the same time, but seven only survived the operation, the remaining four not being able to throw off their skins: the seven fed on till a second change, and this time two only survived, and these separated from each other. One of these died in the next change, leaving only one survivor, which I afterwards lost, but not until it was sufficiently large for me to recognize it as the caterpillar of *Endromis versicolor*. — *Richard Weaver*; *Kinloch Rannoch, September 11, 1845.*

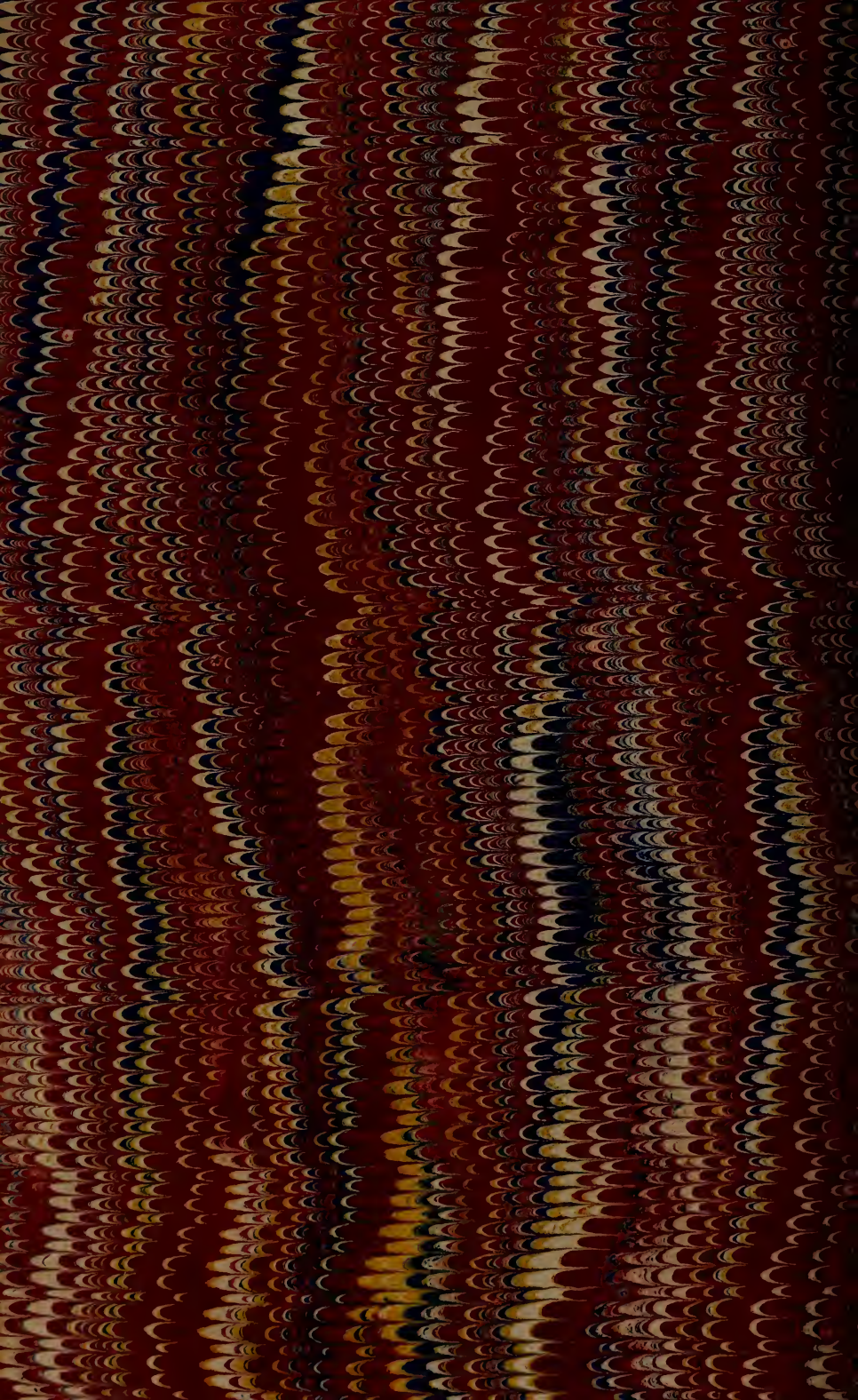
Capture of Crymodes Templi and Graphiphora depuncta, near Doncaster. I took a specimen of *Crymodes Templi*, resting on the irons of a gas-lamp, on the outskirts of the town of Doncaster, in October, 1842, and I have obtained two others since, which were taken at Chesterfield. I took a specimen of *Graphiphora depuncta* here on the 7th of August, and another on the 17th of August, 1844. — *Hugh Reid*; *Doncaster, September 24, 1845.*

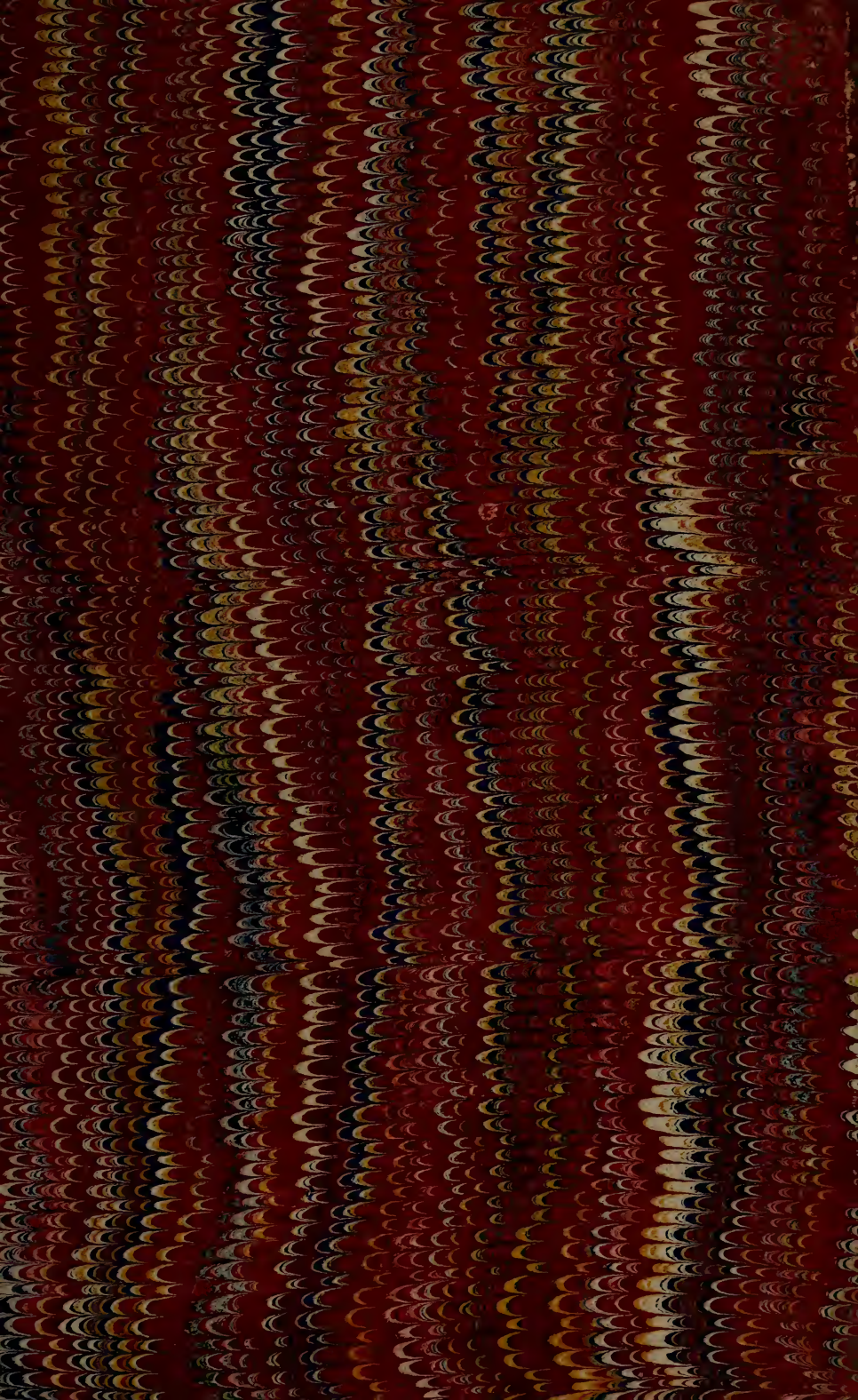
Miana strigilis and Æthiops. In the last number (*Zool.* 1085), Mr. Doubleday has stated that my note on these insects in the July number is not altogether correct, or only applicable to certain localities. I there stated that *strigilis* was only taken at or near wood or coppice land; Mr. Doubleday now proves me correct by stating that he has taken both species together. Strange if he had not; his locality being meadow and garden ground, surrounded by wood-land, both species must there be taken. I can now speak from experience, that *strigilis* has not occurred at any of the following localities: — Chelsea, Putney, Battersea, Wandsworth, Fulham, Hammesmith, Hyde Park and St. James's Park; while in all these localities *Æthiops* abounds. On the fens of Lincolnshire and Cambridgeshire, *strigilis* is never taken, or on any other fen or meadow land that I am acquainted with. Will Mr. Doubleday inform me of any locality where they can be found? Mr. Doubleday then states that he has bred them from larvæ that exhibited little or no difference from each other. I hope Mr. Doubleday, with his great experience, will not connect two species from that cause. I could give a list of a number of Lepidopterous insects, which exhibited little or no difference in the larva state. As truth is my only object, I should feel obliged to Mr. Doubleday or any other correspondent, to set me right if I am wrong. Mr. Doubleday states that he has not been able to rear them from eggs; he never will from moths taken with sugar, for if they have taken any quantity of sugar, the power of depositing eggs seems to be destroyed. — *H. J. Harding*; 1, *York St., Church St., Shore-ditch, September 8, 1845.*

The Hessian Fly. “Mr. Herrick states (*American Journal of Science*, xli. 156)

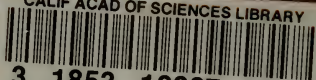
that, in this part of the country, a very large proportion, probably more than nine tenths, of every generation of this fly is thus destroyed. One of these parasites was made known by Mr. Say, in the first volume of the 'Journal of the Academy of Natural Sciences of Philadelphia;' and the interesting discovery of three more kinds is due to the exertions of Mr. Herrick. They are all minute Hymenopterous insects. The chief parasite of the pupa is the Eurytoma destructor, (*Ceraphron destructor* of Say). This has often been mistaken for the Hessian fly, from being seen in wheat-fields, in vast numbers, and from its being found to come out of the dried larva-skin of that fly. In the month of June, when the maggot of the Hessian fly has taken the form of a flax-seed, the Eurytoma pierces it, through the sheath of the leaf, and lays an egg in the minute hole thus made. From this egg is hatched a little maggot, which devours the pupa of the Hessian fly, and then changes to a chrysalis within the shell of the latter, through which it finally eats its way, after being transformed to a fly. This last change takes place both in the autumn and in the following spring. Some of the females of this or of a closely allied species of Eurytoma, come forth from the shells of the Hessian fly without wings, in which form they somewhat resemble minute ants. Two more parasites, which Mr. Herrick has not yet described, also destroy the Hessian fly, while the latter is in the pupa or flax-seed state. Mr. Herrick says, that the egg-parasite of the Hessian fly is a species of *Platygaster*; that it is very abundant in the autumn, when it lays its own eggs, four or five together, in a single egg of the Hessian fly. This, it appears, does not prevent the latter from hatching, but the maggot of the Hessian fly is unable to go through its transformations, and dies after taking the flax-seed form. Meanwhile its intestine foes are hatched, come to their growth, spin themselves little brownish cocoons within the skin of their victim, and in due time they are changed to winged insects and eat their way out. "The following account" says Dr. Harris "of my observations on the barley-straw, was published in the 'New England Farmer,' in July, 1830. In winter, each maggot was imbedded in the thickened and solid substance of the stem, in a little longitudinal hollow, of the shape of its own body; and its presence was known by an oblong swelling upon the surface. In some pieces of straw the swellings were so numerous as greatly to disfigure the stem, the circulation in which must have been very much checked, if not destroyed. Early in the following spring these maggots entered the chrysalis state, and on the 15th of June the perfected insects began to make their escape through minute perforations in the straw, which they gnawed for this purpose. Seven of these little holes were counted in a piece of straw only half an inch in length. The insects continued to release themselves from their confinement until the 5th of July, after which no more were seen. They had destroyed all the flies that were the cause of the disease. The scientific name given to them was *Eurytoma Hordei*."—*Francis Walker; Grove Cottage, Southgate, October, 1845.*

Dytiscus marginalis. One of these kept in confinement left the water by night, and flew about the room, returning to the vessel again by day. It fed on the tadpole of the common frog. I never observed them devour their own species. — *F. W. L. Ross; Broadway House, Topsham, Devon.*





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