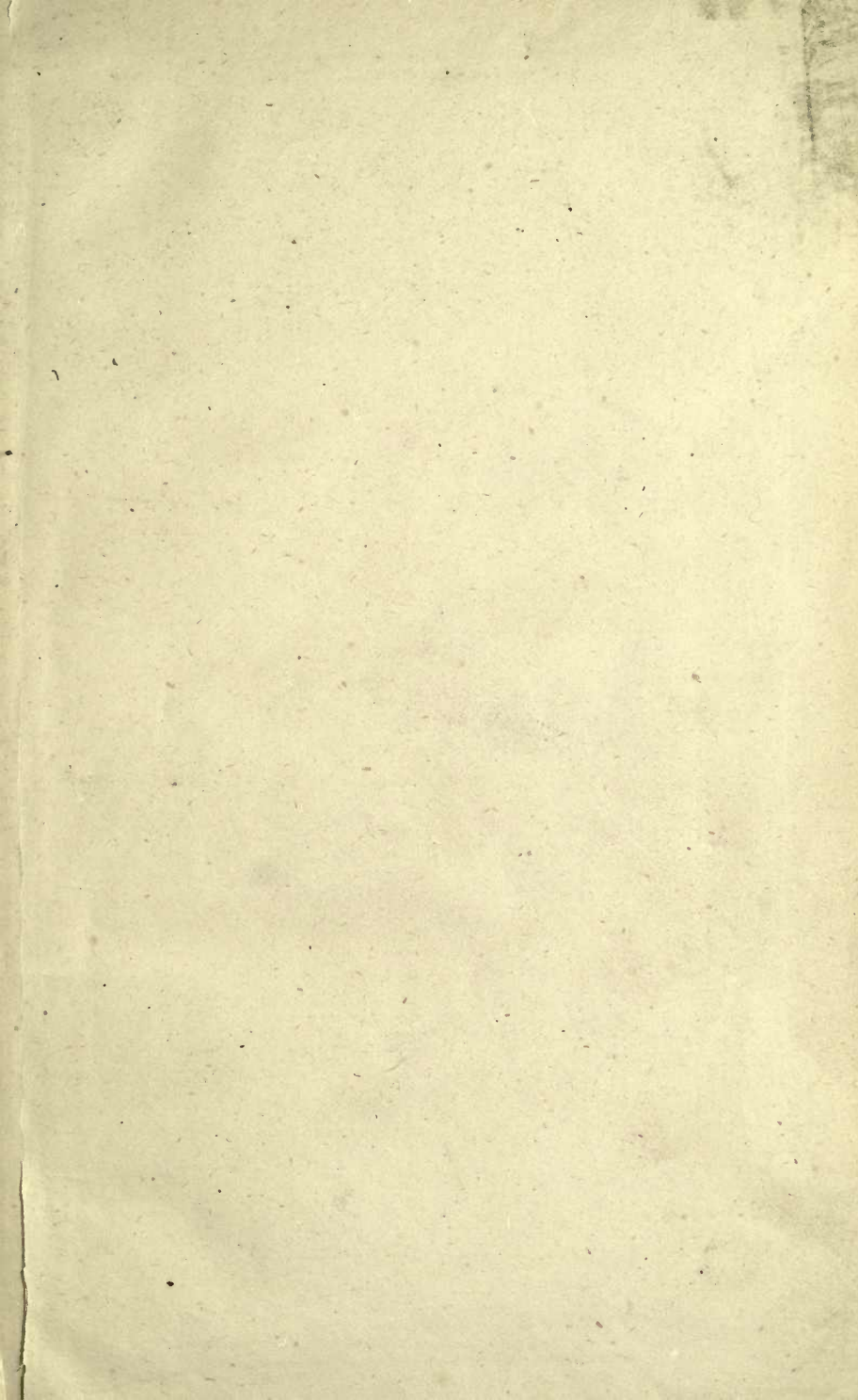
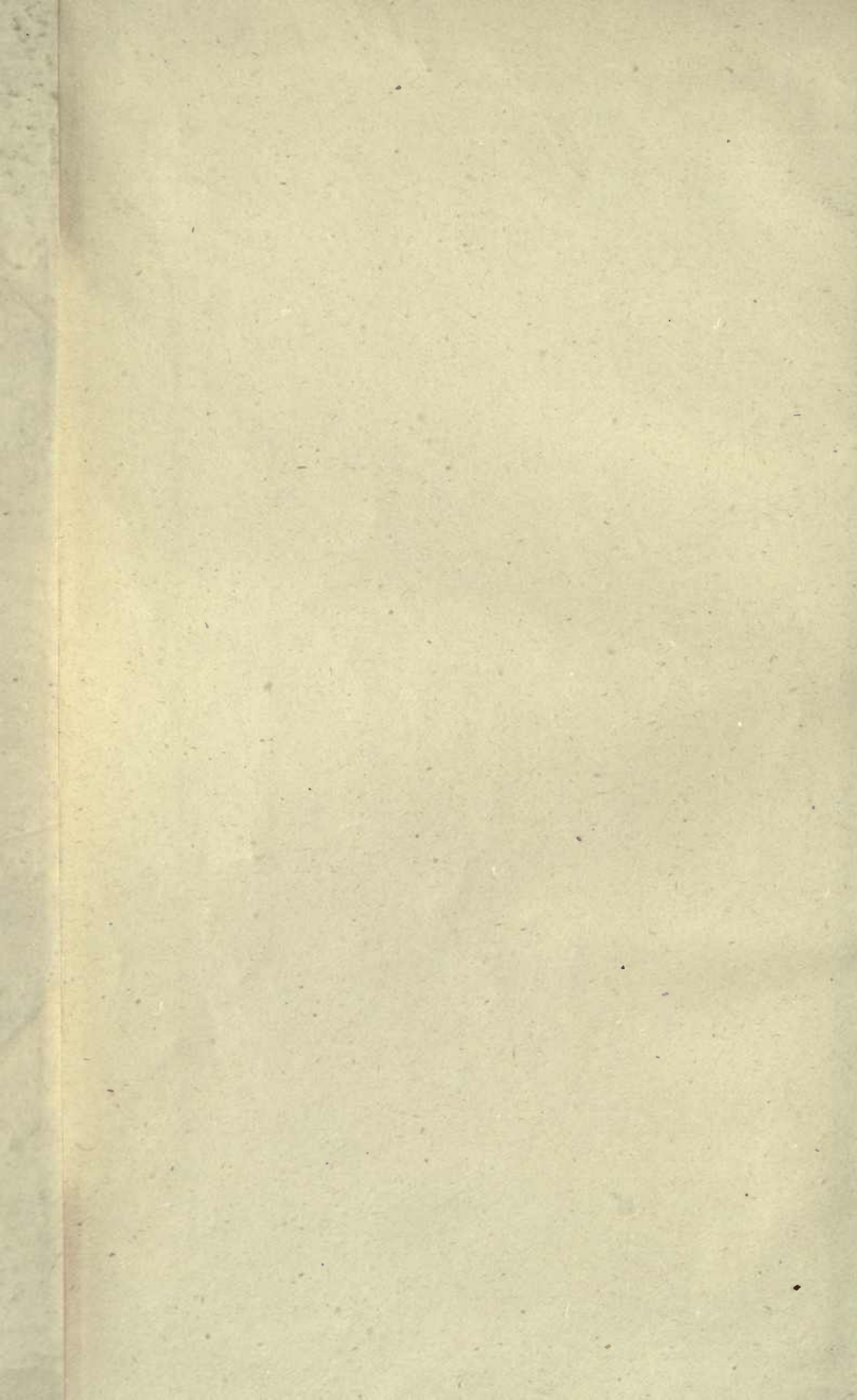


§. 260.

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THE
ZOOLOGIST:
A
POPULAR MISCELLANY
OF
NATURAL HISTORY.

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

VOLUME THE SIXTH.



LONDON:
JOHN VAN VOORST, PATERNOSTER ROW.
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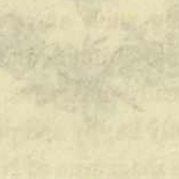
THE

ZOOLOGIST:

POPULAR MISCELLANY

NATURAL HISTORY.

**“Go, from the creatures thy instructions take ;
Learn from the birds what food the thickets yield ;
Learn from the beasts, the Physic of the field :
The arts of building from the bee receive ;
Learn of the mole to plow, the worm to weave ;
Learn of the little Nautilus to sail,
Spread the thin oar, and catch the driving gale.”—POPE.**



LONDON: PUBLISHED BY WOODS, GARDNER, AND LUTHER, 15, N. B. ST. MARTIN'S LANE.

P R E F A C E .

THE time for addressing my subscribers has again returned, and with it the necessity for reporting the progress of the 'Zoologist,' and for passing in review the additions to Natural History made during the year which is now drawing to a close.

I have again to report favorably of the circulation; it has slightly exceeded that of any previous year. It is my ardent wish to attain a still more general circulation, in order to accomplish a plan long since projected of increasing the quantity of matter without additional charge. This most desirable object has indeed been partially attained by the increase of smaller type, so that the present volume contains more matter than any preceding one, although I believe the number of pages remains as heretofore. If by the exertions of subscribers an additional 250 purchasers could be gained, I could add a third sheet without any extra charge; and if 500 subscribers could be added, I should constantly publish four sheets instead of two for a shilling. The idea of obtaining such an addition to the number of purchasers is anything rather than chimerical, but its accomplishment rests entirely with those who already subscribe. There are, throughout the length and breadth of this truly happy and peaceable country, thousands who have never heard of a magazine of Natural History, yet who are thirsting for that very kind of knowledge which such a magazine diffuses, and who therefore would feel infinitely indebted to the friend or acquaintance who should first invite their attention to the 'Zoologist.' I am aware there is nothing new in issuing this solicitation to

my subscribers, neither do I put the case in a different light or more forcible manner than heretofore; yet I trust they will pardon me the repetition, in the knowledge that it is to the interest of all parties, to the interest of the science, and to the interest of the public at large, that the proposed object should be attained.

I now proceed with the agreeable occupation of noticing the contents of the present volume; and these I shall attempt to marshal in the usual order, passing over *Quadrupeds* as a class in which nothing particularly new or striking has been recorded.

In *Birds*, we have had three additions to the British list during the year: the most remarkable of these is a bustard shot in Lincolnshire: this bird was first announced as the Little Bustard (Zool. 1969), by Mr. Roberts, who preserved it, but the same gentleman corrected the error in a subsequent number (Zool. 2065), and it was then pronounced to be the Houbara (*Otis Houbara*), a well-known African species: subsequently, however, Mr. Gould has minutely examined the specimen, and thinks it agrees more closely with the *Otis M'Queenii* of Persia; but it seems highly probable that these are but local varieties of the same bird, the difference between them being extremely slight; in fact Mr. G. R. Gray has given the names as synonymous in his 'Genera of Birds,' p. 83. This bird will probably take its station in our lists as the Houbara (*Otis Houbara*), or, among those who adopt sub-genera, as the Houbara undulata of G. R. Gray. There seems no reason to suspect that this bird had escaped from an aviary, as was at first suggested; its visit to this island seems to have been perfectly spontaneous; yet I do not value so highly as some of our ornithologists the occurrence within our boundaries of a bird which has no kind of claim to be considered a native.

The second addition to our birds is the Melodious Willow-Wren (*Sylvia hippolais* of Temminck), killed near Dover, and reported to the 'Zoologist' by Dr. Plomley (Zool. 2228). This exquisite songster is well known as a migrant native in Europe, and its occurrence on the southern coast of England was always considered probable. I

trust, that now attention is invited to the subject, other ornithologists will ascertain and report to the 'Zoologist' the occurrence of this bird as one of our regular migrants; and at the same time I would beg to solicit a more minute description of the specimen, in order that ornithologists generally may satisfy themselves of the identity of the species.

The third addition to our birds is the American White-winged Crossbill (*Loxia leucoptera*), a single specimen of which has occurred in Dorsetshire (Zool. 2300), the bird previously known by this name being the Two-barred Crossbill of Europe (*Loxia bifasciata* of Nilsson). The North-American species can only be considered an accidental visitor.

I have generally refrained as much as possible from expressing approbation of particular contributions,—and where they are so numerous, so interesting, and so highly important in a scientific point of view, as in the present volume, the enumeration of valuable papers would in itself be a task of no small labour; I cannot, however, allow this opportunity to pass without expressing my warmest admiration of Mr. Bury's paper on British Birds occurring in the South of Spain (Zool. 1958), and Mr. Milner's observations on the Birds of Sutherlandshire and Ross-shire (Zool. 2014) and of St. Kilda and the Outer Hebrides (Zool. 2054). I have received several contributions touching the early arrival of the fieldfare; two of these have been published: I beg to state that the general arrival of fieldfares took place, as usual, on the 30th and 31st of October, and that I fear some mistake has occurred: I consider it probable that the missel thrush, which by the middle of September had collected in small flocks of from ten to thirty, was mistaken for the fieldfare: in this view of the subject I am supported by Mr. Henry Doubleday, and I know of no ornithologist whose opinion is entitled to equal weight.

The communications made to the Admiralty by Captain M'Quhæ has turned public attention to the possibility of the existence of a *Sea-Serpent* (Zool. 2307). My own views on this subject have long been known: two years have elapsed since I expressed an opinion (Zool.

1604), that although the evidence then before the public was perhaps insufficient to convince those who had hypotheses of their own to support, yet that it was far too strong for the fact-naturalist, the inquirer after truth, to dismiss without investigation. To advance such an opinion as this,—to admit the possibility of the existence of a sea-serpent in so enlightened an age as the nineteenth century,—of course led to my being loaded with ridicule; loaded, but not overwhelmed, for I immediately afterwards ventured on expressing a still bolder opinion,—no less than that of suggesting its affinity to a tribe of animals supposed to be extinct. I stated on the wrapper of No. 54 that the *Enaliosauri* of authors would, if living, present the appearances described. Almost immediately after this I published the statement of Captain Sullivan and five other British officers, who deliberately assert (*Zool.* 1715) that they saw—while on a fishing excursion on the coast of British America—a sea-serpent, which they supposed to be eighty or a hundred feet in length; its head, six feet in length, and its neck, also six feet in length, were the only parts constantly above water, and resembled those of a common snake: the creature passed them with great rapidity, “leaving a regular wake.” Nothing is said of any undulating movement, or of any appearance of portions or coils of the body. The statement of Captain M’Quhæ (*Zool.* 2307), and that obligingly furnished expressly for the ‘*Zoologist*’ by Lieutenant Drummond (*Zool.* 2306), essentially corroborate the evidence of Captain Sullivan and his companions: the length and position of the head and neck, and their being kept constantly above water, closely correspond; the estimated total length corresponds; the non-observance of any undulation corresponds,—indeed Captain M’Quhæ expressly states that no portion of the animal appeared to be used in “propelling it through the water, either by vertical or horizontal undulation.” Thus we have two separate statements closely corresponding with each other, and each statement is vouched for by several British officers whose veracity has never been called in question: under these circumstances we may afford to dismiss from this inquiry all those assertions of American captains which have been treated in this country with such contempt. Resting the evidence solely on the

authority of British officers, I then wish to state my unhesitating conviction that a marine animal of enormous size does exist, and that it differs essentially from any living animal described in our systematic works; and here I cannot refrain from expressing my regret that the statement of Captain Sullivan should have been so entirely neglected as it has been: it appears to me in all respects equally trustworthy with the official statement of Captain M'Quhæ.

The next question which occurs is this—to what class of vertebrate animals must we refer this monster of the deep? Is it a mammal, bird, reptile, or fish? All these classes include animals whose home is the ocean. To commence with placental mammals;—we have otters, seals, walruses and sea-cows, all of which breathe atmospheric air, and, therefore, when swimming on the surface usually keep their nostrils—often their heads—above the water: they also propel themselves by means of submerged feet or paddles, and, when inclined, can move along the surface with rapid, direct and continuous motion. Professor Owen (Zool. 2312), in accordance with these views, declares the animal to be a seal, *Phoca proboscidea* or *P. leonina*, but his reasoning on the point appears to me very inconclusive: he assigns to the animal a “capacious vaulted cranium,” whereas Lieutenant Drummond (Zool. 2307) declares the head was “long, pointed, and *flattened* at the top,” adding that it was “perhaps ten feet in length, the upper jaw projecting considerably.” Captain M'Quhæ, also, subsequently to Professor Owen's paper, repeats (Zool. 2323) that “the head was *flat*, and not a *capacious vaulted cranium*.” The captain, who must be annoyed at the insinuation that in an official report he had magnified a seal into a sea-serpent, emphatically declares that “its great length and its totally differing physiognomy preclude the possibility of its being a *Phoca* of any species.” This idea must therefore be abandoned; the other marine mammals still remaining open for future consideration.

Among Birds we have no approach to the animal described.

The Enaliosauri next claim our attention, and, for the present purpose, I could wish to separate them from the Reptiles, because I feel doubtful of their reptilian nature. For this doubt I could urge many

reasons in connexion with the views I have long since published in the 'System of Nature,' but, waiving all considerations which may be considered speculative, I would invite the attention of naturalists to the figure of *Ichthyosaurus* as restored by geologists, to the shape of the beak, the situation of the blow-holes, the character of the paddles, the mammalian structure exhibited by a section of the vertebræ, the extraordinary conformation of the sternum, and the smoothness of the skin; and when they have well considered these important points, I would inquire whether these distinguishing features are not rather mammalian than reptilian? and, again, whether they are not rather marsupial than placental? I have already pointed out the manupedine, ferine, glirine and brutine groups of marsupials; why should we not also have a cetine group? Without making any other use of this suggestion than that of temporarily separating the *Enaliosaurians* from the reptiles, I now request the reader's attention to the arguments of Mr. Morris Stirling (Zool. 2309) and of F. G. S. (Zool. 2311), both of whom support the opinion which I had previously broached as to the *Enaliosaurian* character of the sea-serpent,—a view controverted by Dr. Melville (Zool. 2310) and Professor Owen (Zool. 2316), on the ground that the *Enaliosaurians* are extinct; but here I may perhaps be permitted to remark, that this fact, being only assumed, does not touch the main question.

Proceeding to Reptiles proper, and referring to the suggestion of an anonymous contributor to the 'Times,' quoted by Dr. Cogswell (Zool. 2321, note), we find it questioned whether the animal may not have been a boa; and I may observe that the evidence concerning the head, which has been repeatedly described as precisely resembling that of a snake or serpent, together with the fact of the animal holding its head clear of the water, are so many points in favour of its belonging to the *Ophidia*; but, on the other hand, we must place the non-observance of that undulating mode of progression which every snake must employ,—and it amounts to more than non-observance, for Captain M'Quhæ, who directed his attention to this point especially, declares that such undulation did not exist. Again, the enormous length—three times that of a boa—militates against this

hypothesis. Professor Owen lays great stress on the non-existence of ophidian vertebræ; but as only two ophidians have yet entered the arena as competitors for the title of sea-serpent,—*Saccopharynx flagellum*, which I have heard is a *bona fide* black snake, and *Boa constrictor*, which is received on all hands as a veritable serpent,—I think the absence of ophidian vertebræ is of no great moment. The Sauria offer similar coincidences with the Ophidia, and present a similar discrepancy: their heads and necks might readily be described by general observers as those of snakes or serpents, but the undulating motion with which they swim is almost precisely similar to that of snakes, and holds equally good as an objection to our marine monster entering their ranks. The Crocodilia and Chelonia have next to be considered, and these truly possess the submerged limbs requisite for propulsion in a direct course along the surface of the water; moreover, natatorial undulation of the vertebral column in crocodiles is highly improbable, in turtles absolutely impossible: hence, as far as aquatic progression is concerned, these reptiles agree more aptly than any other known living animals with the recently-published descriptions of so-called sea-serpents. Yet the comparatively compact form of both crocodiles and turtles, and especially the orbicular figure of the latter, quite preclude the idea of their being described—even by the veriest tyro in observation—as snakes of a hundred feet in length; again, in both crocodiles and tortoises floating on the surface of water, the back, and not the head and neck, must be the part most prominently and permanently visible. It is therefore manifest that no existing group of reptiles answers the conditions required by the recently-recorded descriptions of the sea-serpent.

Finally, among Fishes, the mind turns very willingly to the sharks as offering a solution of the problem; and the record respecting the sea-serpent of Stronsa (Zool. 2320) has given great weight to this view, adopted as it has been by such eminent naturalists as Doctors Mantell and Melville (Zool. 2310). With regard to the Stronsa animal, I entertain very grave doubts of the decision in question: it certainly does not seem to have possessed the vertebræ of an ophidian, but then no naturalist desires to make it one: the boa hypothesis is

applied only to the sea-serpent of the Dædalus. Leaving, however, this Orcadian monster to its own merits, I may observe, *first*, that all analogy contravenes the idea of a shark having a neck, and *secondly*, I would beg of those gentlemen who advocate this hypothesis, to take their pencils and depict a shark with his head and shoulders clear out of the water, and his body hanging almost perpendicularly below: I think the most brilliant fancy could scarcely imagine a shark maintaining such a position for twenty minutes at a time, and, what is stranger still, while in this position, ploughing the ocean at the rate of twenty miles an hour.

After maturely considering these various views, it will be found that the Enaliosaurian hypothesis presents the fewest difficulties,—in fine, one only, the supposition that these wonderful creatures have become extinct. It will be the object of a separate essay, now preparing for the press, to adduce evidence from other sources of the existence—in sea-serpents seen off the Norwegian coast—of two large flappers or paddles, closely corresponding in situation with the anterior paddles of Ichthyosaurus, and also of enormous eyes, exactly as indicated by the fossil remains of that animal; but this, not being deducible from recent observations, may be reserved for a more complete and careful review of the entire history of these enormous creatures which in all probability will eventually be found to constitute several genera and species.

In throwing open the pages of the 'Zoologist' to communications on a subject so uniformly *tabooed* by the scientific,—in claiming for that subject a calm and dispassionate investigation,—in expressing my unhesitating belief that the various narratives, although often conflicting, are nevertheless, according to the belief of the narrators, perfectly true,—and in attempting to assign the sea-serpent a place in the System of Nature,—I feel convinced that all true naturalists will approve the course I have taken, and will be willing to abide the result. Discussion must ever have the tendency to dissipate error and establish truth; and he who believes himself right need never shun the ordeal. In this spirit I invite discussion, and shall feel obliged for any communications tending to elicit or establish truth.

A most interesting addition has been made to our batrachian *Reptiles* in the Triton palmipes of Daudin. The first notice of this salamander as an inhabitant of Britain occurs in the July number (Zool. 2149), and is from the pen of Mr. J. Wolley; the information is confirmed and the range of habitat extended by Mr. Baker (Zool. 2198); its specific identity is settled by M. Deby (Zool. 2231); and, finally, its northward range to the extreme point of Scotland is shown by Mr. J. Wolley (Zool. 2265). The addition of a well-ascertained species to so small a group as our batrachian reptiles is a matter of great importance.

Mr. R. Q. Couch concludes his most valuable 'Notes on the Fishes of the District of the Land's End,' in the January number (Zool. 1972); and Mr. J. Couch contributes an interesting paper in the same number (Zool. 1980), on the 'Egg-purse and Embryo of a Species of Myliobatis,' found a few miles from Fowey, on the coast of Cornwall.

In *Crustacea* we have had the most important discovery that the present century has furnished. A number of extremely large and beautiful specimens of the Cancer dormia of Linneus (the Dromia vulgaris of Milne-Edwards) have been taken on the coast of Sussex (Zool. 2325). For this most valuable addition to the Fauna of the British Islands we are indebted to Messrs. George and Henry Ingall, whose indefatigable exertions in the cause of Natural History have been rewarded by great success, as their rich collections abundantly attest.

It is, however, in *Insects* that our favourite science has made the greatest advance; and first I must mention Lepidoptera: the past summer has been unfavourable to the development of this beautiful class, the temperature lower than usual, the wind frequently boisterous, and the rain in many parts of the Kingdom almost continuous: the occurrence of rarities among the larger and more conspicuous Lepidoptera has not been observed. One beautiful Geometra,

Harpalyce sagittaria, entirely new to Britain, is recorded by Mr. Henry Doubleday (Zool. 2236) as having occurred at Peterborough, and the same eminent naturalist records [the occurrence of *Zeuzera arundinis* (Zool. 2236), the females of which have never previously been taken in this country, and a single male is unique in his own cabinet. In turning our attention to the Micro-Lepidoptera, we find that here the labours of British Lepidopterists have been most ardent and most successful. Mr. Bedell has described a beautiful species, *Microsetia quinquella* (Zool. 1986), taken by himself in some abundance on the oaks at West Wickham, and entirely new to science. Mr. Logan has described *Ephippiphora turbidana* (Zool. 2034), taken by himself near Edinburgh, on the burdock, and new to Britain. Mr. Sircom has described *Lophoptilus Staintoni* and *Microsetia Bedellella* (Zool. 2037), taken by himself on Durdham Downs, near Bristol, and by Mr. Stainton on Sanderstead Downs, Surrey: both these moths are new to science. Mr. Stainton has contributed largely to our store of knowledge of these minute tribes. His descriptions of Tortricidæ in the January number (Zool. 1987) contain many insects previously unrecorded as British, and several errors in synonymy are carefully rectified. In the March number (Zool. 2035) Mr. Stainton describes *Phycita interpunctella*, taken by Mr. E. Shepherd in London, and *Chauliodus Illigerellus*, taken by Mrs. Stainton on the Surrey Downs: both of them are new to Britain. In the April number (Zool. 2078) the same author commences his admirable 'Monograph on the British Argyromiges,' completed in the course of the volume, with descriptions of forty British species and figures of their wings: and lastly, he describes in the July number (Zool. 2164) three species of *Apheloseitia*, under the name of *obscuripunctella*, *biatomella*, and *rhyngosporella*; all of them new to science. The unwearied assiduity of this talented entomologist has given a great impulse to the study of our minute moths.

In Hymenoptera, I have to notice the occurrence of *Trigonalys Anglicanus*, recorded (Zool. 1994) by Mr. Frederick Smith as having been captured in Derbyshire: the same unwearied and most accurate entomologist has concluded his descriptions of British Bees: this

volume contains the genera *Halictus* (Zool. 2037, 2100 and 2167), *Hylæus* (2200), *Cilissa* (2207), *Ammobates* (2212), and *Dasygaster* (2241) : in the genus *Halictus* four new species are described,—*H. longulus*, found by Mr. Charles Bowring in the Isle of Wight,—*H. prasinus*, taken by Mr. Dale at Barmouth, by the Rev. Mr. Little in Scotland, and by the author at Hawley, in Hampshire,—*H. zonulus*, taken by the author near Woolwich, and by Mr. Walcott near Bristol,—*H. maculatus*, taken by the author in Hampshire ; the whole of these are new to science.

In Coleoptera, the result of assiduous collecting has been eminently satisfactory, several extremely rare species having occurred in some abundance. The following are novelties : *Pytho depressus* and *Cetonia ænea*, reported by Mr. J. F. Stephens (Zool. 1996) as having been taken by Mr. Weaver in Scotland ; *Tetratoma Desmarestii* is described (Zool. 2109) by Mr. E. W. Janson, and taken by himself in Henhault Forest, near London ; *Trichius zonatus*, described by Mr. F. Smith (Zool. 2216), and taken by Mr. R. Weaver in Scotland ; *Leptinus testaceus*, described by Mr. Hardy (Zool. 2277), and taken by Mr. W. E. Janson, at Box Hill, in Surrey ; and *Badister peltatus*, recorded by myself (Zool. 2277) as in the cabinets of Mr. Ingall and Mr. S. Stevens : this insect was described many years since by myself under the name of *Trimorphus Erro*.

In Orthoptera, I have to notice the re-appearance of the migratory locust in small numbers, during the months of August and September ; and *Locusta subcærulipennis* is recorded by Mr. Stephens (Zool. 1996) as having occurred at Southampton.

In Hemiptera, Mr. Walker has described no less than forty-three new species of Aphides (Zool. 2217 and 2246) with great minuteness, specifying the plants on which they feed.

In Zoophytes, Mr. A. H. Hassall has described (Zool. 2223) three new British species, under the names of *Coppinia mirabilis*, *Campularia serpens* and *Sertularia gracilis* ; but his paper is incomplete, inasmuch as he gives no information as regards locality, or the circumstances under which these zoophytes occurred.

This rapid summary of those contributions which are more particularly designed for future reference conveys a very imperfect idea of the amusement and instruction contained in the volume; but were I to attempt to classify, or even enumerate, the lighter contributions, I should extend my address beyond all reasonable bounds, without conferring any corresponding benefit on my readers.

A few words as regards the future. Most earnestly do I solicit the continued co-operation of my contributors. The earliest announcement of the occurrence of a new or rare Quadruped, Bird, Reptile, Fish, Mollusk, Crustaceous animal, or Insect, will be most thankfully received: if new, I hope the announcement will always be accompanied by a description, and, if practicable, by a figure; and if the object should not be new, but have been previously described or figured as British, then a figure or description should be referred to, and the date, locality and other particulars given with scrupulous care and accuracy.

I have already ventured to suggest (Zool. 2295) an altered form for the local lists of birds, and have referred—as an example of the mode in which it may be carried out—to the Appendix of the lately-published ‘Letters of Rusticus,’ a work which I presume is now generally distributed among British ornithologists. I heartily wish that my ornithological correspondents would devote some time to the subject, each, in his own neighbourhood, endeavouring to compile an exact statistical account of the birds which reside in or visit it: in the preparation of such statistics I consider it a matter of great importance to ascertain with precision the presence or absence, at the various seasons of the year, of those which are esteemed the commoner British birds. The occasional appearance of a North-American, or African, or European species, is to be recorded of course; likewise the capture of sea-fowl in a midland county; but the legitimate object of a local list is to exhibit, at one point of view, the species which habitually and of choice frequent a given locality, and to indicate whether their tarriance is constant or seasonal. Even among occasional visitors there is much to be learned: it will be found that

certain species—such, for instance, as the brambling, siskin, honey-buzzard, and others—occasionally appear in considerable numbers in all the eastern counties: their advent is not strictly seasonal, neither is their stay regulated by ascertained laws or causes, but, as far as we yet know, is the result of caprice.

I have to regret the comparative paucity of communications respecting Fishes, Crustacea, Radiata and Zoophytes, and earnestly invite the attention of naturalists residing near the coast to these interesting divisions of the animal kingdom.

I must again call the attention of correspondents to the request I have so frequently made as to the mode of preparing contributions. Nothing should be introduced that is not intended for publication; all other matter should be restricted to a private note: all encomiums on the 'Zoologist' or its Editor should be strictly avoided; however kindly intended, their publication is not useful, and striking them out of the proofs is often both troublesome and expensive: communications on various subjects should be written on separate pieces of paper, or, if several are contained on one sheet, they should be so separated as to allow of their being parted from each other for arrangement, and nothing should ever be written on the back. All names of insects must be written in full: a deviation from this rule has compelled me to lay aside as useless many contributions which appeared highly interesting. Lastly, the names of persons and places should be written with peculiar and careful clearness,—thus reversing the practice adopted in writing to a friend, when a mere flourish of the pen is sufficient to express a locality or person equally well known to both. I trust an adherence to these rules will not be found very irksome; and I hope that I have no contributor who would not incur some little trouble in our common cause.

And now, in conclusion, I venture to express a hope that the feeling of unmixed goodwill with which I regard all those who love

Nature for her own sake, is in some measure returned by my very numerous readers: the belief, backed by frequent individual assurances, that such is the case, is an appropriate and abundantly ample reward for the unceasing, though agreeable, labour of superintending the publication of the 'Zoologist.'

EDWARD NEWMAN.

9, Devonshire Street, Bishopsgate,
November 27, 1848.

CONTENTS.

ALPHABETICAL LIST OF CONTRIBUTORS.

- BAKER, WILLIAM**
Description of a species of newt, 2198
- BARCLAY, HENRY**
Habits of the common shrew, 1957 ;
Anecdote of a cat, 2053
- BARNS, H. G.**
Locust at Bembridge, 2116
- BARTON, STEPHEN**
Note on the capture of *Lamia textor*,
2245
- BATEMAN, THOMAS**
Locust in Derbyshire, 2001
- BATES, H. W.**
Remarks on local species of Coleoptera
in the neighbourhood of Burton-on-
Trent, 1997
- BEADLES, JOHN N.**
Colias Edusa near Broadway, 1985 ;
Provincial names of birds in Glou-
cestershire and Worcestershire, 2290
- BEDELL, GEORGE**
Description of *Microsetia quinquella*,
a new species of moth of the family
Tineadæ, 1986
- BENTLEY, WILLIAM**
Sagacity of a cat, 2008
- BLADON, JAMES**
Extremely large red grouse, 2023
- BOLD, THOMAS JOHN**
Variety of the common squirrel, 1957 ;
Larva of the death's head moth,
1985 ; Locust at Whitley and near
Newcastle-on-Tyne, 2001 ; Bohe-
mian waxwing near Newcastle-on-
Tyne, 2019 ; Bohemian waxwing at
Earsdon, Northumberland, 2064 ;
Common bittern at Prestwick Car
and Blagdon, Northumberland,
2066 ; Green sandpiper at Cambo,
Northumberland, 2066 ; Black-
throated diver at Cullercoats, Nor-
thumberland, 2067 ; Capture of a
honey buzzard near Beamish, Dur-
ham, 2297
- BOND, FREDERICK**
Young of the little bittern near En-
field, 1969 ; Capture of *Buprestis*
mauritanica in Plaistow marshes,
1999 ; Locust in Cambridgeshire,
2000
- BORRER, W., JUN.**
White spoonbill in Sussex, 2066 ;
Egyptian goose in Sussex, 2067
- BREE, REV. W. T., M.A.**
Rooks building, 2189 ; Provincial
names of birds, 2191
- BRIDGMAN, W. K.**
Amphipeplia glutinosa near Norwich,
2150
- BRIGGS, J. J.**
Note on cows having twin calves, 1957 ;
Rare birds in Derbyshire, 1966 ; Ha-
bits of the stock dove, 2021 ; Fauna
of Melbourne, 2278 ; Is the house
sparrow injurious or beneficial to
agriculture ? 2299
- BROMFIELD, W. A., M.D., F.L.S.**
Note on the natterjack and tree frog,
2304 ; Inquiry respecting *Colias*
Edusa, 2331
- BURLINGHAM, D. C.**
Inquiry respecting the characters which
distinguish the young of the black-
backed gull from the young of the
glaucous gull, 2027 ; Inquiry res-
pecting the egg and nest of the
thrush nightingale, 2064
- BURY, REV. CHARLES, A.M.**
Notes on some of the rarer British
birds as observed in the south of
Spain, 1958
- CLARK, REV. HAMLET**
Coleoptera of Northamptonshire, 2045
- CLIBBORN, JAMES**
Inquiry respecting the migration of
plovers, 2023 ; White-fronted goose
at Waterford, 2024

- COGSWELL, C., M.D., F.L.S.
The great sea-serpent, 2316
- COLLINS, JOHN
Nysia hispidaria in abundance near Huddersfield, 2077
- COOKE, NICHOLAS
Female fowl in plumage of male, 1969; Peronea permutana at New Brighton, 2271; Description of a sand-piper shot near Bootle, 2303
- COOKSON, ISAAC
Capture of a snake in a mole trap, 2028; Snakes destructive to mice, 2074; Habits of a sea-gull, 2149
- COOPER, REV. W. W.
Red-throated diver at Worcester, 1969, 2027; Great sea-serpent, 2192
- COUCH, JONATHAN, F.L.S.
On the egg-purse and embryo of a species of Myliobatis, 1980; Locust in Cornwall, 2001
- COUCH, R. Q.
Fishes in the district of the Land's End, 1972
- COURTIS, WILLIAM
Capture of Vanessa Antiopa at Ponder's End, Enfield, 2032; Capture of three specimens of Calosoma sycophanta at Brighton, 2113
- CREWE, H. H.
White variety of the hedge sparrow, 2143
- CURTIS, JOHN, F.L.S.
Capture of rare insects in England and Scotland, 1984; Difficulty of rearing Plusia Iota from the larva, 1986
- CURTLE, M.
Short-eared owl near Worcester, 2063; Summer or tree duck at Tenbury, 2067; On rearing Acherontia Atropos, 2076; Cirl bunting, &c., near Worcester, 2229
- DALE, J.
Nesting of the siskin near Durham, 2188
- DAWSON, REV. J. F., M.A.
Notes on the capture of Harpalidæ and the allied families in the Isle of Wight, 2110; Capture of Coleoptera at Whittlesea Mere, 2113; Notes on the Halticæ of the Isle of Wight, 2114; Capture of Lixus bicolor, Hypera fasciculata, &c., 2275
- DEBY, JULIAN
Note on the occurrence of Turdus minor of Latham in Belgium, 1966; Note on Lyctus canaliculatus, 2116; Note on Triton palmipes, 2231
- DOUBLEDAY, HENRY
Females of Zeuzera Arundinis, 2236; Harpalycæ sagittaria near Peterborough, 2236
- DOUGLAS, J. W.
A word on long series, 1983; Captures of Lepidoptera, 1990; On rearing Plusia Iota, 2076; Vanessa Antiopa at Penge, Surrey, 2150; Larvæ of Lepidoptera in the catkins of the willow, 2199
- DRUMMOND, EDGAR, Lieut. R.N.
The great sea-serpent, 2306
- DUFF, JOSEPH
Capture of Vanessa Antiopa at Bishop's Auckland, 2032; Locust at Bishop's Auckland, 2046; On the partial migration of birds, 2071; Sphinx Druræi at Bishop's Auckland, 2076; Singular proof of reasoning in a canary, 2144; Additional note on the chaffinch, 2144; Hoopoe near Sunderland, 2190; On killing insects by heated air, 2222
- DUNN, ROBERT
Surf scoter in Shetland, 2067; Glaucous gull and Iceland gull, 2070; Some notes on the birds of Shetland, 2187; Note respecting the gray phalarope, the red-necked phalarope and the great northern diver, 2230
- DUNNING, J. W.
Capture of Agrophila sulphuralis, 2199
- ELLMAN, JAMES B.
Hops attractive to moths, 1985; Gastropacha quercifolia at Battel, 1986; Locust at Battel, 2002; White variety of the swallow and pale variety of the martin, 2021; Bittern at Battel, 2023; Capture of Lepidoptera at Battel, 2031; Stormy petrel at Hailsham, 2073; White variety of the blackbird, 2142; Little bittern at Ewhurst and Ledlescomb, 2147; Little crane at Seaford, 2148; Crested grebe at Battel, 2148; Note on an egg of the blackbird, 2188; Capture of Ephyra orbicularia, &c., at Battel, Note on Chlorissa punctaria, Note on Grammesia trilinea, Note on Dasychira pudibunda, Nettles attractive to moths, 2199; Anecdote of a rat, 2223; Vanessa Antiopa near Battel, Capture of Pterophorus pulveridactylus at Battel, Capture of Lepidoptera at Battel, 2236; Bats flying by day, 2289; Early arrival of fieldfares and snipes near Battel, 2298;

- Swallows dug out of hedge-banks, 2302; Ivory gull at Hastings, 2304; Sphinx *Convolvuli* at Battel, 2331
- EVANS, REV. ARTHUR
Leicestershire Names of Birds, 2136; Caprice of a kestrel, 2138; Nesting of the ring ouzel in Warwickshire, 2142
- FALCONER, ALEXANDER PYTTS
The cuckoo destructive to the caterpillars of the cabbage butterfly, 2021; Woodcocks drowned in crossing the Channel, 2023; Dragon-fly devouring a wasp, 2047
- FISHER, W. R., F.L.S.
Inquiry respecting the egg of the greenshank, 2024; Note on the bimaculated duck, 2026; On the supposed occurrence of turkey's bones at Lough Gúr, 2064; Migration of plovers, 2066; Young of the glaucous gull, 2070; Capture of sea-fowl at the North Cape by foxes, 2071; On the nomenclature of birds, 2134; Egg of the greenshank, 2147; Egg of the ringed guillemot, 2148
- FOOTITT, W. F.
Provincial names of birds, Nottinghamshire, 2258
- FOX, GEORGE
Mule between cirl bunting and canary, 2020
- FRERE, REV. H. T.
Dates of the arrival of migratory birds at Aylsham in 1847, Gyr falcon—mistranslation, 2018; Curious nesting-place of robins, 2020; Early nesting of ring doves, 2022; Snake in the hole of a sand martin, 2027; Disease in fish, Abundance of fish in Norfolk, 2030; Provincial names of birds, 2186; Capture of *Deilephila Celerio* at South Walsham, 2199
- FULLER, HENRY
Common cormorant in the Thames, 2149
- GARTH, JAMES C.
Early appearance of the fieldfare, Singular variety of the robin, 2298; Hawfinch at Knaresborough, 2300
- GOATLEY, T.
Early nesting of the robin, 2064; Merlin, 2138; Note on the great plover, Migration of the golden plover, 2147; Nest of the woodcock, 2148
- GORDON, REV. GEORGE
Breeding of the Salmon, 1970; Habits of the field mouse, 2008; Prolific pair of blackbirds, 2297; Answer respecting *Larus maximus*, 2304; Suggestions for obtaining Crustacea, 2326
- GOUGH, THOMAS
On the arrival of migratory birds in the neighbourhood of Kendal, 2224; Capture of the velvet and common scoters on Windermere, 2230
- GREGSON, C. S.
Capture of Lepidoptera in Lancashire, 2031; *Colias Edusa* near Liverpool, 2032; Capture of *Deilephila lineata* at Hale, Lancashire, and of *Graphiphora Pyrophila* near Liverpool, 2033; *Cillenum laterale* at Liverpool, 2046; Locust near Lancaster, 2047
- GREVILLE, R. NORTHMORE
Tenacity of life in *Rhagium bifasciatum*, 2217
- GURNEY, J. H.
On killing worms before using them as bait for fish, 2269
- GURNEY, J. H., & FISHER, W. R.
Ornithological and other observations in Norfolk for the month of October (1847), 1965; Ornithological notices for November, 1966; for December, 2017; for January (1848), 2027; for February, 2071; for March, 2134; for April and May, 2183; for June, July and August, 2291
- GUYON, GEORGE
Insectivorous propensity of *Notoxus Monoceros*, 2000
- HAMBROUGH, W. E.
Capture of *Achatia spreta* on willow blossoms, 2151
- HANSELL, P. E.
Discoloured egg of the green woodpecker, 2258
- HARDING, H. J.
Economy of *Melanoleuca dodecea*, 2332
- HARDY, JAMES
The stoat and the rooks, 1958; Disappearance of swallows at Penmanshiel, Berwickshire, 1968; *Medeterus regalis*, 1992; Coleoptera on the coast of East Lothian, 1996; Note on *Aphodius contaminatus*, 1999; Habits of *Blemus pallidus*, *Spharites glabratus* in Scotland, Unusual habitat for *Pristonychus terricola*, 2000; Occurrence of venal Diptera in Berwickshire, with

- descriptions of two new British species, 2097; *Criorhina asilica* near Penmanshiel, *Dilophus tenuis* at Redheugh, On *Medeterus conspersus*, Galls of the meadow-sweet, Gall of the tansy—with a description of the fly by which it is occasioned, Parasite of *Aleyrodes Chelidonii*, 2165; Note on *Boreus hyemalis*, 2175; Distance to which Diptera will fly in quest of food, Capture of *Tetanocera dorsalis*, 2200; Of the manner in which the female of *Psocus quadripunctatus* constructs a web to protect her eggs, 2221; Description of *Leptinus testaceus*, a recently-discovered British Coleopterous insect, 2277
- HARRINGTON, H. G.**
Child suckled by a Periah bitch, 2130
- HASSALL, ARTHUR HILL**
Definitions of three new British zoophytes, 2223
- HAWLEY, JOHN**
Locust near Doncaster, 2116
- HEMSWORTH, REV. A. B.**
Extraordinary instance of parental care in a rat, 2132; Partiality of the common guinea-fowl for toads, 2303
- HEPBURN, ARCHIBALD**
Notes on the quadrupeds and birds of the northern districts of Inverness-shire, 2010; Frog at a great elevation in Inverness-shire, 2027
- HIGGINS, EDMUND THOMAS**
Spotted sandpiper in Yorkshire, 2147; White stork near York, 2229
- HODGKINSON, J. B.**
Capture of Lepidoptera near Northfleet, Kent, 2328; *Deilephila Celario* in Cumberland, *Lophopteryx Carmelita* in Cumberland, *Graphiphora Pyrophila* and *Agrotis nebulosa* in Cumberland, *Ephippiphora turbidana* and *Phycita abietella* at Carlisle, 2331
- HOWDEN, JAMES C.**
Capture of Coleoptera in Scotland, 2044
- HUGHES, E. J. R.**
Anecdote of a terrier, 2130; Thievish propensity of the jackdaw, 2258
- HUSSEY, REV. ARTHUR, M.A.**
Note on wheatears, 2298; Swallows, and a plea on their behalf, 2303
- INCHBALD, PETER**
Calocampa vetusta near Huddersfield, 1986; Lesser spotted woodpecker near Huddersfield, 2021; Note on *Aspilates purpuraria*, 2034; Remarks on the apterous females of our British Geometræ, 2077; Capture of *Glæa rubricosa* on sallow blossoms, Further remarks on apterous Geometræ, 2151; Nest of honey bees in a blank window, 2245
- JANSON, EDWARD W.**
Rare Coleopterous insects, with observations on their habits, to which is appended the description of a species hitherto unrecorded as British, 2108
- JOHNSON, F. W.**
Rough-legged buzzard in Suffolk, Ring ouzel in Suffolk, 2063; Bohemian waxwing in Suffolk, Extreme abundance of the mealy redpole near Ipswich, 2064; Common bittern at Ipswich, 2066; Variety of the moorhen, Velvet scoter and common scoter in Suffolk, 2067; White spoonbill at Aldborough, 2229; Ferruginous duck in Suffolk, 2230; Masked gull at Aldborough, 2231
- JOHNSON, J.**
Killing insects by heat, 2245; Productive eggs of a female of *Smerinthus ocellatus*, taken from the parent after death, 2269; Provincial names of birds in Yorkshire, 2290
- LAWSON, GEORGE**
Note on the building of the rook, 2145; Hooper or wild swan on the Tay, 2148; Fondness of the cat for *Nemophila insignis*, 2252
- LEADBITTER, J. G.**
Tameness and voracity of a toad, 2074
- LEAN, WM.**
Frog-eating in England, and inquiry respecting the edible frog, 2073
- LEWIS, REV. W. S.**
Remarks on the stinging of gnats, 2237; Bats flying by daylight, 2252
- LOGAN, R. F.**
Description of *Ephippiphora turbidana*, a new British moth of the family Tortricidæ, 2034
- LONGLEY, HENRY**
Capture of *Deilephila Gallii* at Rainham, Kent, 1985
- LONGLEY, W. H. & C. H.**
Hermaphrodite specimen of *Smerinthus Populi*, 2270
- LUXFORD, GEORGE, A.L.S.**
Cats and *Nemophila insignis*, 2289
- MALAN, REV. S. C., M.A.**
Egg of the Egyptian vulture, 2138;

- Apparent instance of gratitude in an Indian species of owl, 2140; Egg of the redwing, 2141; Labeling eggs of birds, 2186
- MANSER, E.**
Locust near Hertford, 2001
- MARRIS, ROBERT**
Locust near Wisbeach, 2001
- MELVILLE, A. G., M.D.**
The great sea-serpent, 2310
- MICHAEL, ALBERT D.**
Locust at Cromer, 2046; Vanessa Antiope at Cromer, 2076
- MILNER, W. M. E., M.P.**
Birds of Sutherlandshire, Ross-shire, &c., 2014; Collared pratincole near Scarborough, 2023; Great shearwater near Robin Hood's Bay, 2027; Some account of the people of St. Kilda and of the birds of the Outer Hebrides, 2054; Egg of the greenshank, 2066; Carabus clathratus in Sutherlandshire and the Hebrides, 2113; White stork near York, 2191; Egg of the greenshank, 2230
- MONTGOMERY, R. J.**
Tawny owl in Ireland, 2141; Redstart in Queen's County, Reed warbler near Dublin, Blackcap near Dublin, 2143; Night heron in the county of Louth, 2147
- MORRIS, BEVERLEY R., M.D., A.B.**
Early nidification of the robin, 2019; Curious habit of the rook, 2021; Anecdote of a turtle dove, 2022; Note on the black-backed and glaucous gulls, and inquiry respecting Larus maximus, 2070; Note on the great plover, 2146
- MOSLEY, SIR OSWALD, BART., F.L.S., &c.**
Remarkable instance of voracity in a trout, 2150
- MUSKETT, CHARLES**
Deilephila Celerio, &c., near Harleston, 1985
- NEWMAN, EDWARD, F.L.S., Z.S.**
Little gull and Bonaparte's gull at Belfast, 2069; Nomenclature of species, 2136; On the bustard shot in Lincolnshire, 2146; Colias Hyale near Wolverton, 2236; Naturalization of Rana esculenta at Epping, On reptiles swallowing their young, 2268; Badister peltatus in England, 2276, 2277; Local lists of birds, 2295; Beautiful and extraordinary variety of the chaffinch, 2298; Proposed alteration of name in the European white-winged crossbill, and occurrence of the American white-winged crossbill in England, 2300; Peculiarity in the eyes of frogs, Capture of an enormous trout at Drayton Manor, 2324; New British crab on the coast of Sussex, 2325
- NEWTON, ALFRED**
A few words on the subject of nomenclature in ornithology, 2062; Note on the mealy redpole, 2144; Woodcock's breeding in Norfolk, 2148; Buffon's skua near Thetford, Dates of arrival of migratory birds near Elveden, 2149; Arrival of migratory birds at Elveden, Nidification of birds near Elveden, Arrival of migratory birds at Everton, 2227; Remarkable variety of colour in the egg of the green woodpecker, 2229; Discoloured eggs of the green woodpecker, 2301
- PARRY, ELLEN WEBLEY**
Hooper or wild swan nearly seven years in the possession of Rear-Admiral Webley Parry, 2024
- PEACOCK, E. JUN.**
Anecdote of a snake, 1969; Habits of the pond mussel, 1982; Locust near Hull, 2000; Is the sparrow more useful or injurious to the farmer? 2188
- PERCIVAL, E. F.**
Reptiles swallowing their young, 2305
- PLOMLEY, F., M.D., F.L.S.**
Melodious willow wren in Britain, 2228
- POOLE, JOSEPH**
Scops eared owl near Wexford, 2019; Peewit destructive to the wireworm, 2023; Bewick's swan in Wexford Harbour, 2026
- PRATER, REV. THOMAS**
Parental affection in the owl, 2141; Anecdote of a magpie, 2146; White starling near Bicester, 2229; Roseate tern near Bicester, 2230; Hawks near Bicester, 2297
- REYNOLDS, THOMAS F.**
Carnivorous propensity of the hedgehog, 2253
- RICHARDSON, JOSEPH**
Locust near Thorne, 2001
- ROBERTS, ALFRED**
Little bustard at Kirton Lindsay, Lincolnshire, 1969; Houbara in Lincolnshire, 2065
- RODD, EDWARD HEARLE**
Great plover wintering in Cornwall,

- 2023; White wagtail near Penzance, Continental white wagtail at Penzance, 2143; gray-headed wagtail near Penzance, 2144; White stork at the Land's End, 2147; Temminck's stint near Penzance, 2259
- ROUNDELL, H.**
Temminck's stint near Oxford, 1969; Black tern near Oxford, 2191
- RUDD, T. S.**
Roller near Shelton Castle, 1968
- SALMON, J. D.**
Red-throated diver near Guildford, 2304
- SALTER, S. J. A.**
Extraordinary assemblage of the golden-crested *Regulus*, 2020
- SALTER, T. BELL, M D., F.L.S.**
The cuckoo singing by night, 2146; *Cerura vinula* killed with chloroform, 2151
- SHIPLEY, A.**
Cerura latifascia near Leeds, 2236
- SIRCOM, JOHN**
Habit of the young cuckoo, 1966; Descriptions of *Lophoptilus Staintoni* and *Microsetia Bedellella*, two new British moths of the family Tineidæ, 2037; Capture of *Micro-Lepidoptera*, 2271; Note on *Gracilaria substriga*, 2272
- SLATER, J. W.**
Curious habit of a Dipterous insect, 1992; On the geographical distribution of the *Cetoniadæ*, 1999; On the functions of the antennæ of insects, 2175; On the sense of touch in spiders, 2328
- SMITH, FREDERICK**
Trigonalys Anglicana in Derbyshire, 1994; Descriptions of the British species of bees belonging to the genus *Halictus* of Latreille, 2037, 2100, 2167; Descriptions of the British species of bees belonging to the genera *Hylæus* and *Prosopis* of Fabricius, and also of the genus *Cilissa* of Leach, 2200; Appendix to F. Smith's descriptions of British bees, 2209; Descriptions of two species of *Trichius* supposed to be British, 2216; Description of the genus *Dasypoda* belonging to the family *Andrenidæ*, 2241; Singular monstrosity in the antennæ of *Lamia textor*, 2245
- SMITH, REV. JAMES**
Nomenclature of birds, 2291; Remarks on birds visiting the river Dovern, near Banff, 2292; Colour of the egg of the Egyptian vulture, 2296; Hoopoe and other rare British birds near Banff, Roller near Banff, 2302
- STAINTON, H. T.**
Capture of *Calocampa vetusta* at Carron, 1986; Descriptions of several species of British *Tortricidæ*, 1987; Correction of an error in page 1988, 2078; On the method of attracting *Lepidoptera* by light, 2030; Description of *Phycita interpunctella* of Hubner, a new British species of the family Tineidæ, 2035; *Chauliodus Illigerellus* of Hubner, a new British moth of the family Tineidæ, 2035; Description of *Coriscium alaudella* and *C. quercetellum*, two new British moths of the family Tineidæ, 2035; Monograph on the British *Argyromiges*, 2079, 2152; Descriptions of three undescribed British species of the genus *Apheloseitia*, 2164; Note respecting *Yponomeuta sedella*, 2272; Remarks on the genus *Argyromiges*, 2273
- STEPHENS, J. F., F.L.S., Z.S., &c.**
Capture of *Pytho depressus*, *Cetonia ænea*, &c., in Scotland, and of rare insects elsewhere, 1995; *Coriscium quercetellum* and *C. alaudellum* of Zeller, described many years previously by Haworth as *Gracilaria substriga* and *G. cinerea*, 2078
- STEVENS, SAMUEL**
List of captures of rare insects in the New Forest, 2178; Capture of *Agrotis pascuea* at Deal, 2331
- STRANGWAYS, RICHARD**
Bohemian waxwing near Yarmouth, 2064
- STREATFIELD, J. FREMLYN**
Locust in London, 2002
- STRICKLAND, ARTHUR**
Inquiry respecting the masked gull and remarks in reference to the glaucous gull and greater petrel, 2068
- TALBOT, BERTRAM**
Female bullfinch in plumage of male, 1968
- TAYLOR, ROBERT**
Singular situation of the nest of a starling, 2145; Anecdote of a rook, 2146
- THOMSON, W. T. C.**
Colias Edusa and *Sphinx Convolvuli* in Scotland, 1985

- TOMES, ROBERT F.
Plumage of the tawny owl, 2019; Discoloured eggs of the green woodpecker, 2301
- TURNER, REV. WILLIAM, A.M.
Locust in Lincolnshire, 2001; Difficulty of breeding *Plusia Iota*, 2033; On the diseased larvæ of *Plusia Iota*, 2270; Curious anecdote of the kestrel, 2296; Aberrant economy in *Tortrix viridana*, 2331
- TWINN, E. R.
Extraordinary friendship of a cat and turtle dove, 2131; Fondness of the dog, 2182
- VAUGHAN, P. H.
Correction respecting *Margaritia margaritalis*, 1986; Plants attractive to *Lepidoptera*, *Dasycampa rubiginea* near Bristol, 2031
- WALKER, FRANCIS, F.L.S., G.S.
List of insects produced from oak-apples, 1995; Descriptions of Aphides, 2217, 2246
- WEBB, J. S.
Provincial names of birds, 2018; White wagtail near York, 2229
- WEBSTER, T.
Another extremely large red grouse, 2066
- WEBSTER, WILLIAM, JUN.
Oared shrew at Birkenhead, 2009
- WOLLEY, GEORGE
Oared shrew in Lancashire, 2289; A martin with the middle tail-feather white, 2303
- WOLLEY, JOHN
Griffon vulture—correction of a previous error, 2063; Long captivity of a specimen of the little owl, 2141; Description of a species of newt, 2149; Narrow-bordered bee Sphinx in the Highlands, 2199; Note on the Triton palmipes of Daudin, 2265

ALPHABETICAL LIST OF SUBJECTS.

- Abdera bifasciata* at Colney Hatch, 2108
Abdera quadrifasciata at Colney Hatch, 2108
Achatia spreta on willow blossoms, 2151
Acherontia Atropos, 1985
" " on rearing, 2076
Acipenser sturio, 1973
Agrophila sulphuralis, 2199
Agrotis nebulosa in Carlisle, 2331
" *pascua* at Deal, 2331
Aleyrodes Chelidonii, parasite of, 2166
Ameiva dorsalis, habits of, 2306
Ammobates bicolor, 2212
Ammocætes branchialis, 1978
Ammodytes lancea, 1972
" *Tobianus*, 1972
Amphipepla glutinosa near Norwich, 2150
Anatomy, first steps to, 2047
Anchylopera Lyellana and *derasana*, 1989
Andrena Aprilina, 2211
" *eximia*, 2211
Angel-fish, 1976
Animals, complexity of structure in, 2238
Antennæ of insects, functions of, 2175
Antithesia leucomelana, 1988
" *ochroleucana*, 1987
Antithesia prælongana, 1988
Anthocopa papaveris, 2213
Apheloesia biatomella, 2165
" *obscuripunctella*, 2164
" *rhynchosporella*, 2165
Aphides, generation of, 2002
Aphis adjuta, 2220
" *adjuvans*, 2220
" *adscita*, 2220
" *amica*, 2218
" *asperulæ*, 2248
" *basalis*, 2220
" *collega*, 2218
" *commoda*, 2219
" *conjuncta*, 2220
" *consors*, 2218
" *consueta*, 2219
" *Cynoglossi*, 2217
" *Dianthi*, 2219, 2246
" *dispar*, 2251
" *diversa*, 2251
" *familiaris*, 2220
" *frequens*, 2219
" *Galeopsidis*, 2251
" *Glechomæ*, 2247
" *lateralis*, 2251
" *Lycopsidis*, 2219

- Aphis mali*, 2251
 „ *nigrorufa*, 2247
 „ *particeps*, 2217
 „ *persola*, 2246
 „ *Polygoni*, 2249
 „ *prunaria*, 2250
 „ *prunina*, 2250
 „ *pulvera*, 2218
 „ *Rumicis*, 2247, 2249
 „ *sejuncta*, 2247
 „ *similis*, 2249
 „ *socia*, 2217
 „ *sodalis*, 2218
 „ *Sonchi*, 2246, 2248
 „ *suffragans*, 2221
 „ *Veronicae*, 2248
- Aphodius contaminatus*, 1999
- Archipelago, Indian, zoology of, 2117
- Argyromiges alnifoliella*, 2096
 „ *Amyotella*, 2271
 „ *argentipunctella*, 2163
 „ *Boyerella*, 2161
 „ *cavella*, 2085
 „ *cerasifoliella*, 2158
 „ *Clerkella*, 2159
 „ *comparella*, 2155
 „ *connexella*, 2086
 „ *corylifoliella*, 2156
 „ *Cramerella*, 2096
 „ *cratægifoliella*, 2161
 „ *Demaryella*, 2157
 „ *elatella*, 2091
 „ *emberizæpennella*, 2086
 „ *Frœlichella*, 2088
 „ *hortella*, 2153
 „ *ilicifoliella*, 2091
 „ *Junoniella*, 2095
 „ *lautella*, 2082
 „ *Loganella*, 2162
 „ *Messaniella*, 2089
 „ *omissella*, 2163
 „ *padifoliella*, 2160
 „ *pomifoliella*, 2093
 „ *pomonella*, 2092
 „ *quercetella*, 2164
 „ *quercifoliella*, 2090
 „ *rhamnifoliella*, 2160
 „ *roborella*, 2153
 „ *salicicolella*, 2271
 „ *Schreberella*, 2083
 „ *scitella*, 2157
 „ *securiferella*, 2094
 „ *Sircomella*, 2162
 „ *spartifoliella*, 2158
 „ *Spinolella*, 2085
 „ *strigifasciella*, 2087
 „ *sylvella*, 2154
 „ *tenella*, 2152
 „ *trifasciella*, 2088
- Argyromiges tristrigella*, 2087
 „ *ulmifoliella*, 2084
 „ *viminella*, 2271
- Aspilates purpuraria*, note on, 2034
- Atlas, Physical, 2243
- Avocets at Salthouse, 2292
- Bactra furfurana*, 1990
- Badister peltatus* in England, 2276, 2277
- Badger in Derbyshire, 2281
- Bat flying by daylight, 2252, 2289
- Bat, long-eared, in Derbyshire, 2278
- Bee-eater in Spain, 1960
- Bee-hives, aqueous vapour expelled from, 1992
- Bees, British, belonging to the genus *Halictus*, 2037, 2100, 2167; *Hylæus*, 2200
- Birds, rarer British in South of Spain, 1958; rare in Derbyshire, 1966; of the northern district of Inverness-shire, 2010; of Sutherlandshire and Ross-shire, 2014; provincial names of, 2018; arrival of migratory at Aylsham, 2018; of St. Kilda and the outer Hebrides, 2054; migration of, 2071; eggs, catalogue for, 2132; nomenclature of, 2062, 2136; provincial names of, 2136, 2138, 2186; migratory near Elveden, 2149; labelling of eggs, 2186; of Shetland, 2187; arrival of migratory at Kendal, 2224; at Elveden, 2227; nidification of at Elveden, 2227; arrival of migratory at Everton, 2228; provincial names in Nottinghamshire, 2258; in Gloucestershire and Wiltshire, 2290; in Yorkshire, 2290; nomenclature of, 2291; visiting the river Dover, 2292; local lists of, 2295
- Bittern, American, at Yarmouth, 1965; little, young of near Enfield, 1969; at Battel, 2023; common, at Prestwick Car and Blagden, Northumberland, 2066; at Ipswich, 2066; little, at Ewhurst and Ledlescomb, 2147
- Blackbird, white variety of, 2142; egg of, 2188
- Blackbirds, prolific, 2297
- Blackcap near Dublin, 2143
- Blemus pallidus*, habits of, 2000
- Boccus, G., on 'Fish in Rivers and Streams,' 2193
- Boreus hyemalis*, note on, 2175
- Broderip, J. W., 'Zoological Recreations,' 2047
- Bullfinch, female in male plumage, 1968
- Bunting, cirr, near Worcester, 2229
- Buprestis mauritanica* in Plaistow marshes, 1999
- Bustard, great, in Spain, 1961

- Buzzard, rough-legged, near Thetford, 2018; in Suffolk, 2063; honey, near Beamish, 2297
- Calocampa venusta near Huddersfield, 1986; at Carron, 1986
- Calosoma Sycophanta at Brighton, 2113
- Campanularia serpens, 2223
- Canary, instance of reasoning faculty in, 2144
- Canary and cirl bunting, mule between, 2020
- Carabus clathratus in Sutherlandshire and the Hebrides, 2113
- Carcharias glaucus, 1974
 ,, vulgaris, 1973
 ,, vulpes, 1974
- Carpocapsa stelliferana, 1989
- Cat, anecdote of, 2008, 2053; extraordinary friendship of a, for a turtle dove, 2131; fondness for *Nemophila insignis*, 2252
- Cats and *Nemophila insignis*, 2289
- Cerura latifascia near Leeds, 2236
 ,, vinula killed with chloroform, 2151
- Cetonia aenea in Scotland, 1995
- Cetoniadæ, geographical distribution of, 1999
- Chaffinch, 2144; remarkable variety of, 2298
- Chauliodus Illigerellus, 2035
- Child suckled by a Periah bitch, 2131
- Cilissa hæmorrhoidalis, 2207
 ,, tricincta, 2208
- Cilicium laterale at Liverpool, 2046
- Cirl bunting and canary, mule between, 2020
- Colias Edusa near Broadway, 1985; in Scotland, 1985; near Liverpool, 2032, 2331
- Colias Hyale near Wolverton, 2236
- Coppinia mirabilis, 2223
- Coriscium alaudella and *C. quercetellum*, 2035; identical with *Gracillaria substriga* and *G. cinerea*, 2078
- Cormorant, common, in the Thames, 2149; at Herringfleet, 2185
- Cows having twin calves, 1957
- Crag mollusca, 2232
- Crake, little, at Seaford, 2148
- Criorhina asilica near Pennmanshiel, 2165
- Crossbill, two-barred, 2300; white-winged, 2300
- Crustacea, mode of obtaining, 2326
- Ctenicerus sanguinicollis at Snaresbrook, 2109
- Cuckoo, habit of the young, 1966; destructive to the caterpillars of the cabbage butterfly, 2021; singing at night, 2146
- Dasycampa rubiginea at ivy bloom near Bristol, 2031
- Dasyopoda hirtipes, 2241
- Deilephila Celerio near Harleston, 1985; at South Walsham, 2199; in Cumberland, 2331
- Deilephila Galii near Rainham, Kent, 1985
- Deilephila lineata at Hale, Lancashire, 2033
- Dilophus tenuis at Redheugh, 2165
- Diptera, vernal, in Berwickshire, 2097; flight of, 2200
- Ditula Hartmanniana, 1987
- Diver, black-throated, at Taverham, 2027; at Cullercoats, Northumberland, 2067; great northern, in the Dovern, 2294; in Shetland, 2231; red-throated, near Guildford, 2304; at Worcester, 2027; speckled, at Worcester, 1969
- Dodo and its kindred, 2259
- Dog, anecdote of fondness for a kitten, 2182
- Dove, stock, habits of, 2021; turtle, anecdote of, 2022
- Doves, ring, early nesting of, 2022
- Dragon-fly devouring a wasp, 2047
- Dromia vulgaris on the coast of Sussex, 2325
- Drummond, J. L., 'First Steps to Anatomy,' 2047
- Drypta emarginata in the Isle of Wight, 2110
- Duck, bimaculated, 2026; tree, at Tenbury, 2067; tufted, at Cossey, 2134; ferruginous, in Suffolk, 2230; long-tailed, in the Dovern, 2292; scaup, in the Dovern, 2293; pin-tailed, in the Dovern, 2295; tufted, in the Dovern, 2295
- Eagle, golden, in Spain, 1959; white-headed, said to have been seen near Yarmouth, 2185
- Eel, sand, 1972
- Eels devoured by rats, 2008
- Eggs of birds, catalogue for, 2132; labelling, 2186
- Eggs of the blackbird, 2188; of green woodpecker, 2229, 2258, 2301; of greenshank, 2230
- Eggs of *Smerinthus ocellatus*, 2269
- Entomological zones of Pyrenees, 1983
- Ephippiphora turbidana, 2034; at Carlisle, 2331
- Ephydra quadrigutta, 2099
- Eupæcilia dubitana, 1990
- Falcon, peregrine, in Spain, 1959; at Thetford, 2134
- Fieldfares, early arrival of, 2298

- Field sports in Russia, 2254
 Fire flaire, 1977
 Fish, disease in, 2030 ; abundance of in Norfolk, 2030
 'Fish in Rivers and Streams,' 2193
 Fishes and law of kindness, 1971 ; of the Land's End, 1972 ; voracity of, 2074
 Fox in Derbyshire, 2282
 Foxes capturing sea fowl near the North Cape, 2071
 Fowl, female, in male plumage, 1969
 Frog at a great elevation in Inverness-shire, 2027
 Frog-eating in England, 2073
 Frog, edible, at Epping, 2268 ; tree, turned out in Isle of Wight, 2305
 Frogs, peculiarity in the eyes of, 2324
Galeus vulgaris, 1974
 Galls of the meadow-sweet, 2165 ; of the tansy, with description of the fly by which it is caused, 2166
Gastropacha quercifolia at Battel, 1986
 Geometræ, remarks on the apterous females of our British, 2077, 2151
Glæa rubricosa on willow blossoms, 2151
 Globe-fish, Pennant's, 1973
 Gnats, stinging of, 2237
 Godwit, black-tailed, in Spain, 1963
 Golden-eye in the Dovern, 2294
 Goosander at Yarmouth, 2027 ; in the Dovern, 2293
 Goose, gray-legged, curious variety of, 2017 ; white-fronted, at Waterford, 2024 ; barnacle, at Salthouse, 2027 ; Egyptian, in Sussex, 2067 ; on Ormsby Broad, 2134
Gordius marinus on coast of Norfolk, 2183
Gracillaria substriga, 2272
Graphiphora pyrophila near Liverpool, 2033 ; in Cumberland, 2331
 Grebe, red-necked, at Surlingham, 2027 ; great-crested, at Battel, 2148
 Greenbone, 1978
 Greenshank, inquiry respecting the egg of, 2024 ; egg of, 2066, 2147, 2230
 Grouse, red, extremely large, 2023, 2066
 Guillemot, bridled, at Yarmouth, 1965 ; ringed, egg of, 2148
 Guinea-fowl feeds on toads, 2303
 Gull, masked, in Spain, 1963 ; glaucous, curious anecdote of, 2017 ; black-backed, inquiry respecting, 2027 ; masked, inquiry respecting, 2068 ; little, at Belfast, 2069 ; Bonaparte's, at Belfast, 2069 ; glaucous, in Shetland, 2070 ; Iceland, in Shetland, 2070 ; glaucous, young of, 2070 ; black-backed, 2070 ; masked, at Aldborough, 2231 ; ivory, at Hastings, 2304
 Gulls, sea, habits of, 2149
 Gyr falcon, 2018 ; at Bicester, 2134
Halictus abdominalis, 2106
Halictus æratus, 2043
 " *albipes*, 2167
 " *flavipes*, 2042
 " *fulvicornis*, 2170
 " *interruptus*, 2167
 " *lævis*, 2104
 " *leucopus*, 2100
 " *leucozonius*, 2171
 " *longulus*, 2104
 " *lugubris*, 2169
 " *maculatus*, 2172
 " *malachurus*, 2106
 " *minutus*, 2102
 " *morio*, 2101
 " *minutissimus*, 2103
 " *nitidiusculus*, 2103
 " *prasinus*, 2169
 " *quadricinctus*, 2040
 " *quadrinotatus*, 2173
 " *rubicundus*, 2041
 " *sexcinctus*, 2210
 " *sexnotatus*, 2174
 " *Smeathmanellus*, 2101
 " *villosulus*, 2105
 " *xanthopus*, 2173
 " *zonulus*, 2171
Halticæ of the Isle of Wight, 2114
 Hare in Derbyshire, 2287
Harpalidæ captured in the Isle of Wight, 2110
Harpalyce sagittaria near Peterborough, 2236
 Hawfinch in Spain, 1960 ; at Knaresborough, 2300
 Hawks near Bicester, 2297
 Hedgehog, carnivorous propensity of, 2253 ; in Derbyshire, 2278
 Hedge-sparrow, white variety of, 2143
Hemiramphus europæus, 1978
 " *obtusus*, 1978
Hermaphrodite Smerinthus populi, 2270
 Heron, night, in county Louth, 2147
 Honey bee nesting in a blank window, 2245
 Hooper, anecdote of, 2024 ; on the Tay, 2148
 Hoopoe in Spain, 1960 ; at Ormsby, 2185 ; near Sunderland, 2190 ; near Banff, 2301
 Hops attractive to moths, 1985
 Houbara in Lincolnshire, 1969, 2065, 2146
 Hybrid between curlew bunting and canary, 2020
Hylæus annularis, 2203
 " *annulatus*, 2202
 " *cornutus*, 2204
 " *dilatatus*, 2204

- Hylæus hyalinatus*, 2206
 „ *plantaris*, 2205
 „ *punctulatus*, 2205
 „ *signatus*, 2206
 „ *variegatus*, 2202
Hypera fasciculata at Deal, 2275
Ibis, glossy, in Spain, 1962
 Insects, long series of, 1983; Lepidopterous, 1990; Dipterous, curious habit of, 1992; produced from oak-apples, 1995; captured in Scotland, 1995; Coleopterous, on the coast of East Lothian, 1996; Coleopterous, in the neighbourhood of Burton-on-Trent, 1997; Lepidopterous, attracted by light, 2030; taken in Lancashire, 2031; at Battel, 2031; Coleopterous, taken in Scotland, 2044; in Northamptonshire, 2045; Coleopterous, 2108; at Whittlesea Mere, 2113; on the functions of the antennæ of, 2175; Captures of rare in the New Forest, 2178; Lepidopterous, in the New Forest, 2178; Coleopterous, in the New Forest, 2179; Lepidopterous, at Battel, 2199, 2236; Lepidopterous, at Northfleet, 2328
 Insects killed by heat, 2222, 2245
 Jackdaw, thievish propensity of, 2258
 Johnston and Berhaus, 'Physical Atlas,' 2243
 Kestrel, anecdote of, 2296; caprice of, 2138
 Kilda, St., inhabitants and birds of, 2054
Lamia textor near Bristol, 2245; extraordinary malformation in, 2245
Lamna cornubica, 1974
 Lamprey, 1978; silver, 1978; mud, 1978
 Lant great, 1972
 Lark, crested, in Spain, 1960; short-toed, in Spain, 1960
Larus maximus, 2304; inquiry respecting, 2071
 Larvæ in the catkins of the willow, 2199
 Lepidoptera, method of attracting by light, 2030; plants attractive to, 2031
Leptinus testaceus, 2277
Lixus bicolor at Deal, 2275
 Locust near Hull, 2000; in Cambridge-shire, 2000; near Thorne, 2001; near Hertford, 2001; near Wisbeach, 2001; in Lincolnshire, 2001; at Whitley, 2001; near Newcastle-on-Tyne, 2001; in Derbyshire, 2001; in Cornwall, 2001; at Battel, 2002; in London, 2002; at Cromer, 2046; at Bishop's Auckland, 2046; near Lancaster, 2047; near Doncaster, 2116; at Bembridge, 2116
Lophopteryx carmelita in Cumberland, 2331
Lophotilus Staintoni and *Microsetia Bedellella*, 2037
Lyctus canaliculatus, note on, 2116
Macroglossa fuciformis in the Highlands, 2199
 Magpie, anecdote of, 2146
Margaritia margaritalis, 1986
 Martin, pale variety of, 2021
 Martin with white tail feather, 2303
Melanoleuca dodocea, economy of, 2332
Medeterus regalis, 1992
 „ *conspersus*, 2165
 Merlin, 2138
 Melborne, fauna of, 2278
 Mice, snakes destructive to, 2074
 Microscopical Society's Report, 2126, 2180
Microsetia Bedellella, 2037
 „ *quinquella*, 1986
 Moles destructive to wireworms, 2009, 2279
 Mollusca, crag, 2232
 Moor hen, variety of, 2067
 Moths attracted by hops, 1985; case-bearing propagation of, 1986; plants attractive to, 2031; attracted by nettles, 2199
 Mouse, field, habits of the, 2008; long-tailed field, in Derbyshire, 2283; common, in Derbyshire, 2285
 Mule between cirl bunting and canary, 2020
 Mullet, abundance of at Coldingham, 2075
Mustela lævis, 1975
 Mussel, pond, habits of, 1982
Mutilla europæa, habit of, 1994
Myliobatis aquila, 1977
Myliobatis, egg-purse of, 1980
 Natterjack on Shalford Common, 2304
 Nettles attractive to moths, 2199
 Newt, description of a species of, 2149; description of a new species of, 2198
 Nidification of birds at Elveden, 2227
 Nightingale, thrush, inquiry respecting the eggs and nest of, 2064
Noctilio mastivus, habits of, 2004
 Nomenclature, ornithological, 2062, 2136
Notoxus monoceros, insectivorous propensity of, 2000
Nyssia hispidaria, abundance of near Huddersfield, 2077
 Oak-apples, insects produced from, 1995
Ocys tempestivus at Colney Hatch, 2108
Opadia funebrana, 1989
 Ornithological occurrences in Norfolk, 1965, 2017, 2027, 2071, 2134, 2183, 2291

- Ornithological nomenclature, 2062, 2136
 Orthogoriscus mola, 1973
 " oblongus, 1973
 Orthotænia Buolinana, 1990
 " Turionana, 1990
 Osmia cornuta, 2213
 Osprey in Spain, 1959; at Hickling and Horsey, 2185
 Otter in Derbyshire, 2281
 Otters caught in a bow net at Cringleford, 2185
 Ouzel, ring, nesting in Warwickshire, 2142; in Suffolk, 2063
 Owl, little, in Spain, 1959; tawny, plumage of, 2019; scops eared, near Wexford, 2019; short-eared, near Worcester, 2063; anecdote evincing gratitude in, 2140; parental affection in, 2141; tawny, in Ireland, 2141; long captivity of the little, 2141
 Partridge on sea beach, as if about to migrate, 1935
 Paterson, Robert, 'Zoology for Schools,' 2047
 Periah bitch, anecdote of, 2130
 Peronea permutana at New Brighton, 2271
 Petrel, stormy, at Hailsham, 2073
 Petromyzon fluviatilis, 1978
 " marinus, 1978
 Peewit destructive to the wireworm, 2023
 Phalarope, gray and red-necked, in Shetland, 2230
 Philalcea incarnana, 1989
 " acereana, 1989
 Phloiophilus Edwardsii at Colney Hatch, 2108
 Phora fuscipes, 2099
 Phycita abietella at Carlisle, 2331
 " interpunctella, 2035
 Pipe-fish, straight-nosed, 1972; anecdote of, 2075
 Pipistrelle in Derbyshire, 2278
 Plover, Kentish, in Spain, 1962; little ringed, in Spain, 1962; great, 2147; golden, 2147; great, wintering in Cornwall, 2023
 Plovers, inquiry respecting the migration of, 2023; migration of, 2066
 Plusia Iota, difficulty of breeding, 1986, 2033; on rearing, 2076; diseased larvae of, 2270
 Polistichus vittatus in the Isle of Wight, 2111
 Pratincole, collared, near Scarborough, 2023
 Pristonychus Terricola, unusual habitat of, 2000
 Pseudotomia coniferana, 1988
 Pseudotomia dorsana, 1989
 " floricolana, 1989
 " simpliciana, 1988
 Psocus quadripunctatus, nest of, 2221
 Pterophorus pulveridactylus at Battel, 2236
 Pyrenees, entomological zones of, 1983
 Pytho depressus in Scotland, 1995
 Quadrupeds of the northern district of Inverness-shire, 2010
 Quail, Andalucian, in Spain, 1961
 Quail and young at Drayton, 2292
 Rabbit in Derbyshire, 2287
 Raia batis, 1977
 " chagrinea, 1977
 " clavula, 1977
 " maculata, 1977
 " microcellata, 1977
 " oxyrhynchus, 1977
 " radula, 1977
 Rana esculenta at Epping, 2268
 Rat, extraordinary instance of parental care in, 2132; anecdote of a, 2223; brown, in Derbyshire, 2285
 Rats feeding on eels, 2008
 Ray, cramp, 1976; eagle, 1977; painted, 1977; sandy, 1977; sharp-nosed, 1977; spotted, 1977
 Recreations, Zoological, 2047
 Redpole, mealy, 2144; extreme abundance of near Ipswich, 2064
 Redstart, black, in Spain, 1960
 Redstart in Queen's County, Ireland, 2143
 Redwing, egg of, 2142
 Regulus, fire-crested, in Spain, 1960; golden-crested, extraordinary assemblage of, 2020
 Reptiles swallowing their young, 2268, 2305
 Rhagium bifasciatum, 2217
 Rhinoceros, escape of, 2253
 Rhyacionia hastiana, 1990
 Ring ouzel in Suffolk, 2003; nesting in Warwickshire, 2142
 Robin, early nesting of, 2019, 2020, 2064; singular variety of, 2298
 Roller near Redcar, 1968; near Banff, 2302
 Rook, curious habit of, 2021; nesting of, 2145; anecdote of, 2146
 Rooks, nesting of, 2189
 'Russian Field Sports,' 2254
 Salmon, breeding, 1978
 Sandpiper, green, in Spain, 1962; at Cambo, Northumberland, 2066; spotted, in Yorkshire, 2147; wood, near Yarmouth, 2185; near Bootle, 2303
 Scoter, velvet, in Suffolk, 2067; common, 2067; surf, in Shetland, 2067

- Scoters, velvet and common, on Winder-
mere, 2230
- Scyllium canicula, 1973
 " catulus, 1973
 " melanostomum, 1973
- Sea-adder, 1972; painted, 1972; great,
1972; small, 1972; stiff, 1972; worm,
1973
- Sea-fowl captured near the North Cape
by foxes, 2071
- Sea-serpent, Captain Woodward's account,
2028; objections to Captain Wood-
ward's account, 2192; Lieutenant
Drummond's account, 2306; Captain
M'Quhæ's account, 2307; Captain
Henderson's account, 2308; Captain
Beechey's note on, 2309; Mr. Stir-
ling's account, 2310; Dr. Mantell's
hypothesis, 2310; Dr. Melville's hypo-
thesis, 2310; supposed to be a Plesio-
saurus, 2310; its existence universally
believed in Norway, 2311; Professor
Owen's hypothesis, 2312; Dr. Cogswell's
resumé of the evidence, 2316; Captain
M'Quhæ's reply to Professor
Owen, 2323
- Sericoris Douglasana, 1990
- Sertularia gracilis, 2223
- Shanny, extraordinary habit of, 2029
- Sharks.—Small spotted dog, 1973; larger
spotted dog, 1973; black-mouthed
dog-fish, 1973; white shark, 1973;
thrasher, 1974; blue shark, 1974;
porbeagle, 1974; miller dog, 1974;
smooth hound, 1975; picked dog or
spear dog, 1975; hammer-headed
shark, 1975; long-tailed shark near
Berwick-on-Tweed, 2075
- Shearwater, great, near Robin Hood's
Bay, 2027
- Shrew, common, habits of, 1957; oared,
at Birkenhead, 2009; in Derbyshire,
2280; water, in Derbyshire, 2280;
oared, in Lancashire, 2289
- Shrike, great gray, in Spain, 1960; at
Carrow, 2018
- Siskin nesting near Durham, 2188
- Skate, 1977; long-nosed, 1977
- Skua, Buffon's, near Thetford, 2149
- Smerinthus ocellatus, eggs of, 2269
 " populi, hermaphrodite, 2270
- Snake, anecdote of, 1968; in the hole of
a sand-martin, 2027; captured in a
mole-trap, 2028
- Sparrow—is this bird more useful or inju-
rious to the farmer? 2188, 2299
- Sphecodes rugosus, 2209
- Sphærites glabratus in Scotland, 2000
- Sphinx Convolvuli in Scotland, 1985; at
Battel, 2331
- Sphinx Druræi at Bishop's Auckland,
2076
- Spiders, touch of, 2328
- Spilonota amænana, 1988
 " rusticana, 1988
 " trigeminana, 1988
- Spinax acanthias, 1975
- Spoonbill, white, in Spain, 1962; in Sus-
sex, 2066; at Aldborough, 2229
- Squatina angelus, 1976
- Squirrel, common variety of, 1957; in
Derbyshire, 2283
- Starling, singular nesting-place of, 2145;
white variety of, 2229
- Steganoptycha immundana, 1989
- Stilt, black-winged, in Spain, 1962
- Stint, Temminck's, in Spain, 1963; near
Oxford, 1969; near Penzance, 2259
- Stoat and rooks, 1958
- Stoat in Derbyshire, 2282
- Stork, white, in Spain, 1962; at the
Land's End, 2147; near York, 2191,
2229; near Yarmouth, 2291
- Strickland, H. E., and Melville, A. G.,
'Dodo and its Kindred,' 2259
- Sturgeon, 1973
- Sun-fish, oblong, 1973; short, 1973
- Swallow, white variety of, 2021
- Swallows at Penmanshiel, 1968; scientific
dictum of Dr. Johnson respecting,
2064; dug out of hedge-banks, 2302;
a plea in their behalf, 2303
- Swan, wild, anecdote of, 2024; on the
Tay, 2148; Bewick's, in Wexford
Harbour, 2026
- Swift, alpine, in Spain, 1961
- Sylvia hippolais near Dover, 2228
- Syngnathus acis, 1972
 " anguineus, 1972
 " æquoreus, 1972
 " lumbriciformis, 1973
 " ophidion, 1972
 " Typhle, 1972
- Tern, gull-billed, 1963; black, near Ox-
ford, 2191; roseate, near Bicester,
2230
- Terrier, anecdote of, 2131
- Tetanocera dorsalis, 2200
- Tetratoma ancora at Colney Hatch, 2109
- Tetratoma Desmarestii in Henhault Fo-
rest, 2109
- Tetrodon Pennantii, 1973
- Thornback, 1977
- Tit, blue, white variety of, 2027; great,
apparent migratory movement of, 2071
- Toad, tameness and voracity of, 2074

- Torpedo nobiliana, 1976
 Tortrix pillerana, 1987
 Tortrix viridana, aberrant economy of, 2331
 Trichius fasciatus, 2216
 „ zonatus, 2216
 Trigonalys anglicana in Derbyshire, 1994
 Trigon pastinacea, 1977
 Triton palmipes, 2231, 2265
 Trout, voracity of, 2029, 2150; at Drayton Manor, 2324
 Turdus minor of Latham, 1966
 Turkey's bones at Lough Gûr, supposed occurrence of, 2064
 Turnspit dog, anecdote of, 2053
 Turtle dove, extraordinary instance of friendship for a cat, 2132
 Vanessa Antiopa at Bishop's Auckland, 2032; at Ponder's End, Enfield, 2032; at Cromer, 2076; at Penge, Surrey, 2150; near Battel, 2236
 Vole, water, in Derbyshire, 2285; field, in Derbyshire, 2287
 Vulture, Egyptian, in Spain, 1959; egg of, 2138, 2296; griffon, 2063
 Wagtail, gray-headed, in Spain, 1960; near Penzance, 2144; white, near Penzance, 2143; near York, 2229
 Warbler, reed, near Dublin, 2143
 Waxwing, Bohemian, near Lowestoft, 2017; near Newcastle-on-Tyne, 2019; at Earsdon, Northumberland, 2064; near Yarmouth, 2064; in Suffolk, 2064
 Weasel in Derbyshire, 2281
 Wheatears, note on, 2298
 Wireworms destroyed by moles, 2009
 Wood, Searles V., 'Crag Mollusca,' 2232
 Woodchat in Spain, 1960
 Woodcocks drowned in crossing the Channel, 2023; breeding in Norfolk, 2148; nesting of, 2148; nesting near Fakenham, 2185
 Woodpecker, green, remarkable egg of, 2229, 2258, 2301; lesser spotted, near Huddersfield, 2021
 Worms, killing them before using them as bait, 2269
 Yponomeuta sedella, 2272
 Zeuzera arundinis at Holme Fen, 2236
 Zygæna malleus, 1975
 Zoology for Schools, 2047
 Zoophytes, new British, 2223

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THE ZOOLOGIST

FOR 1848.

Habits of the Common Shrew.—Early in October I caught in a plantation, a shrew (*Sorex araneus*) in a mousetrap baited with a nut; I put it into a tin bath with some mould in it and a piece of turf, and have been much interested in watching its habits. Like all the insectivorous animals, it is very impatient of hunger, and its eagerness for food renders it tame. It ate a worm from my hand whilst in the trap. I fed it on cockroaches and spiders, which it appeared to like better than worms. The quantity it would eat was surprising. Sometimes two or three dozen cockroaches were given to it in the evening, and in the morning all were gone except the legs, wings, &c., although the bath was covered up so that they could not get out. In its habits it was very active, always on the move, and usually making a shrill squeaking noise whilst hunting for food. It appeared to follow its prey by scent, and not much by sight. In eating a cockroach, it seized it behind the head, and then began to eat from the head downwards, eating all the body except the legs and wings. Shrews are very pugnacious. I put a dead one into the bath, when the living one seized it directly by the head, trying to shake it. When frightened, it emitted a disagreeable musky smell; and this is, as I conclude, the reason why cats will kill the shrews but not eat them. After keeping it about a fortnight, during which time it remained in perfect health, I let it go, being about to leave home.—*Henry Barclay; Leyton, Essex, October 17th, 1847.*

Variety of the Common Squirrel.—I have to day seen a fine variety of this interesting little animal. It is of the usual colour, excepting that the mystachial bristles, the nose and upper lips, the fore feet, two joints of the toes in the hind feet, and the whole of the claws are white. There is a band of white, about an inch in breadth, near the middle of the body, proceeding from the white of the belly, and nearly meeting on the back. The tail has also, towards the tip, a band of the same colour, two inches in breadth, which, when the tail is arched over the back is parallel with the patches on the sides. It was shot in the neighbourhood of Hexham, Northumberland.—*Thomas John Bold; 42, Bigg Market, Newcastle-on-Tyne, November 27th, 1847.*

Note on Cows having Twin Calves.—A supposition exists amongst many country people, which has been strengthened in some measure by the remarks of scientific men

(See 'Bell's British Quadrupeds,' p. 517), "that if a cow produce twin-calves, one of each sex, the *male* is perfect and the *female* barren." Being accustomed to receive the opinions and assertions of such men as Bell and John Hunter with the utmost deference, and consider them beyond the reach of contradiction, I have been very reluctant to offer the following remarks, and my only motive for so doing is, that I am fully convinced of their accuracy. The assertion then alluded to, I am convinced requires further investigation, and is in many instances without foundation; and as far as my experience serves me, it appears that a female in such a case will just as frequently breed as not. Several instances of one so doing have come to my knowledge. The most remarkable came under my immediate observation. One of our dairy cows, fattened in the summer of 1844 and sold to the butcher, was dropped at the same time with a bull, and was the fruitful mother of five calves in five successive years. A young cow, if she does not breed, is called in these parts a "maiden" or "martyn heifer."—*J. J. Briggs; Derby.*

The Stoat and the Rooks.—On the 17th of September, while walking to church, I had my attention drawn to a party of rooks, seated on a hill-side not far off. They kept up a constant chattering, and appeared to be in considerable agitation and restlessness. On approaching, I found the cause of this commotion was a stoat, which, sallying every instant from a bush of furze close at hand, was endeavouring to secure one of the rooks, by springing at it, as it sat, or into the air, if it rose. It was amusing to see the half-alarmed, half-jesting bearing of the rooks, as they gazed on their puny but supple assailant, or leaped lightly into the air when he made too close a dash at any of them. Small as he was, he did not cease practising his athletics, till he dispersed the conclave. The result, perhaps, convinced him of the folly of attempting to breakfast on a rook.—*James Hardy; Penmanshiel, near Cockburnspath, Berwickshire, October 5th, 1847.*

Notes on some of the rarer British Birds as observed in the South of Spain.

By the Rev. CHARLES A. BURY.

SOME time has elapsed since my name last appeared in your pages. And some of your readers, I am given to understand, have been pleased to express regret at my silence. You, Mr. Editor, know that that silence has not resulted from any diminution of interest in the welfare of the 'Zoologist.' I could, were it worth while, assign more than one reason for my apparent idleness; but one must suffice. That one, however, will probably be deemed good and sufficient by your readers: viz., I had nothing worth communicating. What I now send you may not be worthy of insertion. Insert or reject it, as you please,—it will at least assure you that the 'Zoologist' has my unabated good wishes.

Supposing you to pay me the compliment of printing this communication, I proceed to allay any anxiety that may have been felt on my account by my zoological friends, and to remove any hard thoughts my long silence may have given rise to, by informing them that I migrated last autumn with our summer songsters (I am no songster myself) to a warmer clime. In short, that on October 17th, 1846, accompanied by my better half, and my faithful Newfoundland dog, I embarked at Southampton for the south of Spain. Now as one's natural propensities will attend one, go where we may,

I determined, if no more important occupation offered, to amuse myself by acquiring what information I could on the ornithology of Andalusia. And having so amused myself during my daily walks for six months or more, I will give the readers of your pages the benefit of my observations. My observations, I repeat, for be it known unto you that whatever I have learned has been almost exclusively from personal observation; scarcely a word of information to be relied on could I obtain from Spaniards. The very sportsmen, who lived by their gun, confounded half a dozen species under one name. For instance, all the duck tribe, however widely differing in size or plumage, were '*patos*.' This is to be accounted for by the fact that in Spain birds are estimated exclusively by size; all distinctions between tough and tender, well and ill-flavoured are merged in the *cocino*; and a woodcock upon table is known not to be a sparrowhawk only by the length of his bill,—one will fetch as much as the other in the market. The flamingo (in the estimation of a Spaniard) is equally good with the goose or the bustard. I have seen upon table, and partaken of, the kestrel, gray shrike, hoopoe, starling, &c.; and had I not curiously examined heads and legs, should not have suspected what I was eating.

I had fully anticipated meeting in Spain with some of our rarer birds, and was not disappointed. To these my attention was chiefly directed. Had circumstances permitted of my making excursions into the wild country, especially around Seville, I should, doubtless, have fallen in with more species, and my account of those I did meet with would have been less bald. Such as it is, however, I proceed to give it you.

The Egyptian Vulture (*Neophron percnopterus*), I saw in pairs, usually on the coast, but sometimes inland, in the neighbourhood of Malaga. It was not numerous, and did not make its appearance till March; I presume it breeds in Spain, but could not learn. There was a tame neophron, kept at the public slaughter-house at Malaga, which seemed to fear neither biped nor quadruped. I had a fancy for bringing this bird home, and commissioned a young fellow-countryman to strike a bargain for me; but I presume the owner thereof was unwilling to part with it, as I heard nothing from my juvenile agent.

The Golden Eagle (*Falco chrysaëtos*) seemed to be numerous in the mountainous districts between Malaga and Granada. On one occasion there were two pairs in sight at one time. I am certain of the species; for one bird approached within sixty yards.

The Osprey (*Falco haliætos*) I saw occasionally in the neighbourhood of Malaga in the month of March.

The Peregrine Falcon (*Falco peregrinus*) I saw but once, and that on the banks of the Guadalquivir, November 12th.

The Little Owl (*Strix passerina*) frequented the olive orchards around Seville throughout the winter. I have called this bird the little owl, because a friend whom I left at Seville, tells me that after I was gone he obtained *Strix passerina*, and that it became very plentiful close to Seville; identifying it with the bird we had seen during the winter in the olive orchards. I think, however, he was mistaken; and that the little fellow we used to see was the scops eared owl (*Strix scops*). I did not succeed in obtaining a specimen: for though this little owl is described as "strictly nocturnal," I found it too "wide awake" in the daytime to allow me to get a fair shot. I one day saw as many as seven or eight in the same olive orchard. When first disturbed it would fly out of the olive tree in exactly the opposite side to that on which I

was standing. Its flight was jerking and rapid, but seldom exceeded one hundred yards. It always alighted on a large horizontal branch; and then would sit peeping and peering, bobbing its head up and down, and keeping far too sharp a look out to allow me to approach within convenient distance. Although I spent some hours in the pursuit at different times, I got no more than two shots; and those I—missed!

The Great Gray Shrike (*Lanius excubitor*) was not uncommon during the winter around Seville; though I saw male birds only. In March and April it was not to be found about Malaga.

The Woodchat (*Lanius rutilus*) was first seen by me April 13th, and from that date male birds were abundant. The female had not arrived, or, at least, I could not find it, by the end of the month. The habits of this bird seemed closely to resemble those of the red-backed shrike. Butterflies and Tipulæ appeared to be its favourite food.

The Black Redstart (*Sylvia Tithys*) was very abundant about Seville all the winter. I saw it throughout Andalucia. The males were in beautiful plumage before the middle of February.

The Fire-crested Regulus (*Regulus ignicapillus*) I saw once on an olive tree near Seville. I was sufficiently near to distinguish it plainly from its congener, the gold-crest, which I did not see in Spain.

The Gray-headed Wagtail (*Motacilla neglecta*) made its appearance in small flocks at Malaga in April.

Short-toed Lark (*Alauda brachydactyla*) I saw for the first time April 5th. It became plentiful subsequently. Its note is sweet, but does not equal that of the wood-lark. It sung when soaring; and rose to a considerable height. It frequented the sandy plains near the sea at Malaga.

The Crested Lark (*Alauda cristata*) was very abundant throughout Andalucia. Its note is plaintive; uttered both on the wing, and when settled. I have observed it to alight on either bush or tree. It can hardly be said to congregate, although many individuals might frequently be seen in the same field. Many dozens congregated daily in Seville market.

The Hawfinch (*Loxia coccothraustes*) I saw once in Cadiz market.

The Hoopoe (*Upupa epops*) I saw first in the neighbourhood of Malaga, March 1st. In a few days after it became tolerably abundant. I obtained a pair as specimens; and found their crops well filled with the larva of some large coleopterous insect. The flight of the hoopoe resembles that of the jay. It is seen to most advantage on the ground, when its erect gait and the constantly repeated elevation and depression of the crest give the bird a most interesting appearance. I do not think this bird had commenced building when I left Malaga May 4th, although it seemed to have paired previously to its arrival in March.

The Bee-eater (*Merops apiaster*). No one bird pleased me so much as did this very beautiful fellow. A flock seen at some elevation over head against the clear blue sky of Andalucia is a sight almost worth encountering the inconveniences of the Bay of Biscay for. As they skim along, forming occasional gyrations, they appear almost transparent. The bee-eater made its first appearance in the neighbourhood of Malaga April 10th. It frequented in numbers the banks of the Guadaljore, sometimes settling on the low-growing willows, and sometimes congregating on a high tree. Before leaving the country I visited one of the breeding places. This was situated in

a high bank or cliff on one of the tributaries of the Guadaljore. The cliff was some sixty feet high, and was perforated much after the fashion of a colony of sand-martins. From a friend I learned that the holes were from three to four feet deep. My excursion was made during the third week in April; and the birds had not then commenced building, though they abounded in the vicinity. Indeed I am not sure that the females had arrived, as all the specimens I obtained proved to be males.

The Alpine Swift (*Cypselus alpinus*) I saw but once in Spain. I was sketching on the heights near Malaga, with my gun by my side; and raising my eyes to take a survey of the prospect before me, my attention was arrested by an unusually large swift skimming about with a number of its congeners. As it turned in the sunshine (just out of shot) its white belly was too apparent—that is, for my peace of mind, and the completion of my sketch; which has in consequence come to England in an unfinished state: for I found it impracticable to keep one eye on my board, and the other wandering after the bird. Subsequently at Berne I had full opportunity of observing the flight of this bird. There it was abundant; and more than once did I sit and watch its gyrations around the spire of the cathedral. The flight of the Alpine swift, though nearly resembling that of our common species, is readily distinguished from it. It is as rapid, but steadier. While the common swift appears always in a bustle, hurrying past you as if the existence of the universe depended on its being in time; the flight of the Alpine swift is deliberate and graceful. Its note is not unlike that of the kestrel, but not so loud, or in so high a key.

The Andalusian Quail (*Hemipodius tachydromus*). I hoped, Mr. Editor, to have fully informed myself, and enlightened your readers on the habits of this pretty and interesting late addition to the British fauna; and therefore, in all my walks into the country, and in all my visits to the town markets, I kept my eyes wide open in search of it. I ascertained that such a bird existed, and was known by the name of *Torillo*—Anglice, little bull; so called from its note, said to resemble the bellowing of the veritable bull; but I heard it not. Neither did I see the bird for weeks after I had been in Andalusia. Every quail my dog flushed was to my hopes a torillo; but disappointment only succeeded disappointment, until in January we visited the remarkable Moorish ruins of Alcala, some three leagues from Seville. Here, wandering in the gipsy quarter, we stumbled upon a cage, containing a real live torillo! All sorts of questions were put and answered; the substance of information gained was that the said torillos were plentiful in the neighbourhood. I do not mean to say that my rest was disturbed, but I certainly dreamed of the torillos I was to shoot the next day, accompanied, as I was to be, by an experienced casador. Many a weary mile did I trudge next day, but no torillos did I see; nor anything else scarcely. And the only other example that I did see was suspended in a poulterer's stall at Cadiz. At Malaga I learned from two English gentlemen sportsmen that this bird was to be found in the neighbourhood, but was never abundant; that it frequented the uncultivated lands abounding with the *Palmeta* plant; and they considered it to be a constant resident. I made in company with one of these gentlemen a long day's unsuccessful search for it.

The Great Bustard (*Otis tarda*) I saw on the banks of the Guadalquivir in parties of from ten to fifty. In summer this bird approaches very near to Seville, when it becomes an especial object of pursuit to the casadores. A lady told me she had known

her husband come home in the evening laden "like an ass" with five of these birds. All agreed that this bird was very difficult of approach.

The Kentish Plover (*Charadrius cantianus*) I obtained out of a small flock on the plain immediately outside the walls of Seville. It was abundant on the sea-shore at Malaga.

The Little Ringed Plover (*Charadrius minor*) also I obtained at Malaga. I occasionally saw small flocks at the mouth of the Guadaljore.

The White Stork (*Ciconia alba*) was just making its appearance at Seville, where it breeds in numbers, when we left February 1st.

The Spoonbill (*Platalea leucorodia*). I saw only a solitary example as we ascended the Guadalquivir in November. It does not winter in Spain.

The Glossy Ibis (*Ibis falcinellus*). I bought in the market at Malaga, April 21st, an adult male specimen. It had been shot at the mouth of the Guadaljore, by a more fortunate casador than myself. The same man contrived to kill at one shot, a day or two subsequently, two magnificent flamingos.

The Green Sandpiper (*Totanus ochropus*) was abundant throughout the winter on all the snipe grounds, very much to the annoyance of the shooter: for immediately on its emitting its note, (and it usually kept an exceedingly sharp look out), all the snipes in the neighbourhood took the hint. It goes by the name of the 'snipe's monitor.'

The Black-winged Stilt (*Himantopus melanopterus*). I crave your sympathy fellow-students of Ornithology, while I relate my sad tale. Visiting, April 22nd, a lagoon at the mouth of the Guadaljore, which I was in the habit of frequenting, because birds of many species frequented it too, the first peep showed me at some distance what, though standing deep in the water, I could not fail to recognize as the black-winged stilt. I determined to exercise Spanish caution in making my approach. The ground was favourable: for a bed of the low-growing broom reached to within twenty yards of the bird. I concealed my friend, made my dog crouch, doffed my sombrero, and commenced with stealthy crawl to make for my object. When I guessed I must be within shot, I raised my head softly and cautiously, when, lo! a stupid redshank, which I had not seen, rose shrieking, close to my side. Away, of course, went the stilt, crossing the lagoon and the river. Again and again did I get all but within shot; and hour after hour passed away in pursuit: at last the bird settled on the opposite side of the river, where I could not possibly get near it; I therefore sat down, and watched its proceedings with my glass. Getting tired of this, I was under the necessity of frightening the bird from its present position, with the hope it might take up another more favorable to my wishes. I fixed my gun,—the stilt rose, and with it another bird, which from difference of note, and similarity of appearance, I judge to have been the spotted redshank, new to me, and therefore almost as valuable as the stilt. Away they went, in company, up the river,—I saw them alight some half mile from me, and was off in pursuit; when, observing two fishers coming down the river, who would certainly reach the spot before me, I altered my tactics. The birds, when flushed, would doubtless come down the river; down therefore squatted among the canes close on the river's brink, my friend, dog, and self, to await their approach. On came the fishers; up got the birds; and here they come, directly towards us! Fancy, ye brother collectors, my feelings; two rare birds, the first of their respective species I had seen alive, borne directly towards me with rapid wing! On they come, the red-

shank leading, the stilt not ten yards behind. Click,—click, went the locks of my gun,—I allowed them to cross me; then sprang from my covert; bang—at the redshank; bang—at the stilt. Alas! forgive me, ye sportsmen; pity me, ye ornithologists; both birds continued their flight! The one only turning a summerset, the other dropping one of its long legs. Had they been two snipes, in short, had they been anything but a spotted redshank and a black-winged stilt, no doubt I should have killed them both, despite a certain mistiness which seemed to obscure my vision; and for which I will leave those who have been similarly circumstanced to account. Well, so it was, but not a solitary instance of disappointment on that self-same lagoon; for I could tell of I know not what species of heron falling before my gun amid the canes, too thick and too strong to allow of entrance to my trusty Newfoundland; and I must have told of the consequent loss of the bird. The stilt, however, alighted in sight; and scarcely had it alighted, when I observed a casador stalking it. But, away it went; and away went I to join the Spaniard. I did so, and promised him a dollar, if he would bring me the bird next morning. Next morning arrived, and with it the casador with abundance of redshanks, dunlins, &c., but no stilt. That evening at 11 p.m. we were to start for Granada. At 7 p.m. the casador again appeared, with the stilt alive. He had caught it; for weakened by its wounds, it was unable to rise. I had one hundred matters to settle before starting; no wonder then that the poor stilt was skinned hurriedly. I could not get the head through the neck. I attempted to extract the brain, and succeeded but imperfectly. On my return from Granada the skin was spoiled! So much for the black-winged stilt! You will, perhaps, not deem this long story worth inserting. Its moral is, the extreme wariness of the bird.

The Black-tailed Godwit (*Limosa melanura*) I saw in the market at Cadiz.

Temminck's Stint (*Tringa Temminckii*). A pair of these little fellows frequented a stream near Seville. They were very shy, and I had some difficulty in obtaining one of them.

The Black Tern (*Sterna nigra*) frequented the harbour of Malaga.

The Gull-billed Tern (*Sterna Anglica*) I obtained at Malaga.

The Masked Gull (*Larus capistratus*) was abundant in the same locality.

A friend of mine has suggested that I should wind up with a few observations on the habits of birds as affected by climate. It is an interesting subject; and the idea may probably be new to some of your readers.

Birds, like men, are certainly affected by circumstances, though probably not to a like extent. The experience of every bird-fancier will testify how greatly the disposition and habits of his pets are changed by his treatment. And this change is not confined to the young birds reared from the nest; even the adult, caught and reclaimed, alters greatly in no long time. The taste in food, the choice of company, and tints of plumage undergo more or less of change.

But are birds thus susceptible while in a state of nature? No doubt when driven by necessity, they adapt themselves to existing circumstances.

A pair of birds, accustomed to build their nest in the hedgerow, if removed from a cultivated district, and transferred to some boundless and treeless plain, will accommodate themselves to their altered position, and build upon the ground. I imagine, too, that if the same pair, natives of a temperate, were removed to a tropical clime, the period of nidification would be affected. I surmise this; for I am not sure that I have unquestionable facts to fall back upon, from the occasional instances which occur in

our own land of premature nidification when the temperature in early spring has been unusually high. Now, I observed in Spain last winter certain deviations of habit in species with which I am tolerably familiar. Whether these deviations were the result of difference of climate, or of change of other circumstances, I am not prepared to say: your readers shall have the facts, and may draw their own inferences. In the common snipe, for instance, to which I paid particular attention, and of which a good many dozens fell to my gun, it did appear to me that the general habits or manners were different from those of any snipes whose acquaintance I have courted in this country. The Spanish snipe would much less frequently "lie" to the gun. It seldom got up within satisfactory distance to the gunner, unless he had marked it down, and stole upon it. When flushed, the English snipe usually takes a long and high circling flight, and then drops almost perpendicularly, not unfrequently very near the spot it sprung from. Not so the Spaniard, (though, be it remembered, he is no Spaniard by birth, but has come southward in November); no; up he gets, some thirty or forty yards from you, and down he is again only some hundred and fifty yards off — that is, provided you have not been clever enough to bring him down within a less distance — to tantalize you with the hope of another and a nearer shot. Then, again: in England I never saw a snipe on the ground before flushing it. In short, many a time have I, on approaching the spot on which I have accurately marked a snipe down, stopped and scrutinized most carefully with the hope of detecting the little skulker, and never succeeded yet. Not so was it in Spain: there I could see snipes running about on the ploughed lands, or on the margin of the pools, wading up to the knees in water, or preening their feathers, as they stood on one leg on the sand or on the mud; so that I am now familiar with the terrestrial, as well as aërial movements of the snipe. There they were, four of them, one day in the city-ditch of Seville, taking their pleasure in full view, and within twenty yards of persons innumerable constantly passing and repassing. I know a snipe can be familiar in this country in very severe weather; for I have known snipes to be caught in steel traps in a farm-yard: but it was not severe weather, and consequent short commons at Seville which produced this familiarity, bordering at least upon contempt. The jacksnipe was equally bold; for I saw him too in the self-same ditch. I may be wrong in attributing these differences of habit to difference of climate. They may have resulted from the known or supposed absence of danger: for it was not till quite lately that the Spanish sportsman considered the snipe an object worthy of his gun, or, it may be, within its and his own capabilities,—at least, so testifies Mr. Ford, our highest authority in Spanish sports. That birds possess a certain amount of discrimination I am pretty confident. If they be not capable of reasoning, they do somehow or other infer pretty correctly whether they are, or are not the object of the gunner's pursuit.

I remember an incident, apparently in point, which struck me forcibly at the time: some years ago I was in the habit of taking an early walk; and my usual path led directly through a very well-stocked preserve. It is not to be supposed that I could pass and repass daily among some hundreds of pheasants, and not make my observations on their growth and change of plumage, especially as there were among them many of the pied variety, at that time new to me. So little did these birds regard my presence, that they would allow me to approach within forty or fifty yards without showing other sign of alarm than the mere elevation of the head. Well, the last morning of September arrived, — I walked as usual; and as usual admired the gorgeous display of cock pheasants, now in full and brilliant plumage. I remember stop-

ping and counting, and, I will not say dropping a tear, yet in something akin to pity, wondering how many of the fine fellows before me would fall to the gun next day. It so happened that I did not walk in that direction for three or four days subsequently; but, on my next appearance, the instant I was seen every *cock* pheasant disappeared, while the hen birds continued their breakfast, as unconcerned at my presence as they were wont to be in September. Had not the cocks learned from the experience of the two or three days preceding, that they were the objects of pursuit to the proprietor and his friends; and therefore learned to regard man somewhat differently than they regarded him previously to October 1st? I am at a loss otherwise to account for the alarm of the cocks, and the equanimity of the hens. The one inferred danger in the presence of man, though incorrectly so far as I was concerned; the other might feel for the cocks, but did not fear for themselves. So may it have been with the Spanish snipes. They may not have heard of the introduction into Spain of the percussion cap; nor have learned that with its aid the Spanish sportsman can occasionally knock down a snipe on the wing; and moreover that said sportsman was acquiring a taste for such little exhibitions of skill. And, it may be, that their unwillingness to allow me to approach them, originated in the association of ideas: they connected an English shooting-jacket with an English gun-barrel, and perhaps inferred greater danger than was wont to attend the explosion of a Spanish piece. I might remark on the differences observed in some other species; but my "tailing off" has already extended to an unconscionable length.

CHARLES A. BURY.

Cheshunt, Dec. 4th, 1847.

Ornithological and other Observations in Norfolk for the month of October, 1847.—The red-necked phalarope was taken at Weybourn about the 3rd instant; and on the 9th the ringed or bridled guillemot (*Uria lacrymans*) occurred at Yarmouth. This species is, we believe, new to the Norfolk list. It was observed that the white mark on each cheek which forms the "bridle," is not merely a line, but an indentation or groove in the feathers throughout its length. We have lately seen an egg, taken at Bridlington, which is said, on good authority, to belong to this species. It is white, with a few minute spots of dark brown irregularly disposed over its surface, and is much about the size of the eggs of the common guillemot. This bird is said to breed regularly on the rocks at Bridlington, but in a different and less accessible situation than that chosen by the latter species. An example of the American bittern (*Botaurus lentiginosus*), another interesting addition to the birds of Norfolk, has also been killed at Yarmouth; but not having seen the bird, we are not at present able to add anything to the bare mention of its occurrence. Coveys of the common partridge have, on one occasion to the number of seven, and on another of ten, been lately found among the boats on Yarmouth beach; and the same species has been killed in various parts of that town. Mr. Yarrell remarks that this bird is said to be migratory at the limits of its geographical range, although stationary in central Europe; and quotes M. Malhèrbe's Fauna of Sicily, to show that it visits that island every spring and autumn, on its passage from North Africa to Italy and back. This being the case, we have little doubt from the circumstance related above, that the common partridge is also occasionally migratory with us; and the supposition is strengthened by the facts

which we have elsewhere noticed, (Zool. 1317) that its congener, the red-legged partridge, sometimes exhibits the same propensity. We are assured by an intelligent and highly respectable correspondent at Yarmouth, that late on the evening preceding the day on which the locusts were found in considerable numbers about that place, he heard a kind of confused humming in the air, which he afterwards confidently attributed to the noise made by the passage of the flight of those insects, then passing overhead. An example of the peregrine falcon (the young female of the year) has been taken near Yarmouth.—*J. H. Gurney, W. R. Fisher; October, 1847.*

Ornithological Notices in Norfolk for November, 1847.—Towards the end of last month a female spoonbill was killed at Salthouse; this bird is said to have resorted, at intervals, to a marsh at that place for nearly four months previous to its capture. An immature male specimen of the white-headed eagle was shot at Westwick on the 10th instant; in its stomach were found the remains of a herring. About the same time a pair of waxen chatters were killed at Runton, near Cromer; and another pair of the same species were killed at Horsea about the end of the month. Shortly after the middle of the month a gray lag goose (male) was also killed at Horsea, being the first Norfolk specimen of that species which has come under our notice in a recent state. And about the same time an immature glaucous gull occurred at Horsea.—*J. H. Gurney, William R. Fisher; November, 1847.*

Rare Birds in Derbyshire.—In February, 1845, I saw the following individuals at Mr. Cook's Museum, Derby:—a dotterell, killed near Twyford; a rose-colored pastor, shot near Matlock; a great northern diver, shot off the Derwent near Derby; and a fire-crested *Regulus* that had been killed some years ago in the vicinity of Derby.—*J. J. Briggs; Derby.*

Habit of the Young Cuckow.—The following anecdote communicated to me by Mr. Dunn, the intelligent steward of James Clayfield Ireland, Esq., Brislington Hall, will probably interest many of your readers. In the nest of a hedge-sparrow, some years ago, was deposited an unusual egg. In process of time this was hatched, and, by some means, before the bird's own eggs. The stranger was of a singular form "*exactly like a toad, with a deep cavity in its back.*" One morning, while looking into the nest, he was struck by observing this unfledged creature wriggling about until it had got one of the eggs into the hollow in the back, when, by a sudden jerk, it threw it out of the nest. The egg was repeatedly replaced, when the same means were had recourse to for its ejection. I am indebted for this fact to the circumstance of an egg of the cuckow having been deposited this year in the nest of a robin, built in a hole of a wall near Rose Cottage, Brislington, the residence of the Rev. R. Astley. This had also ejected the natural possessors, possibly by the same means: the bird was carefully watched until fully fledged, when it was for some time secured by a sort of cage: the robin continuing to feed it with maternal care. It made its escape towards the end of June, remaining for a day or two in one of the high trees near the cottage.—*John Sircom, Jun.; Brislington, October 4th, 1847.*

Note on the occurrence of Turdus minor of Latham, in Belgium.—Having received a few days since from Namur a present of several dozen thrushes and fieldfares destined for the table, I had the curiosity to inspect the parcel before passing it to the cook. One of the birds, by its small size, immediately attracted my attention. A nearer investigation showed me that it was very distinct from all our other indigenous species of the genus *Turdus*, so that I took a description of it, after which I had it carefully stuffed. Being desirous to discover its name, I perused attentively all the

works on the birds of the northern hemisphere which I could consult, and have come to the conclusion that it is no other than *Turdus minor* of Latham. This bird has been a great puzzle to ornithologists in general, and that for two principal reasons; firstly, because Latham's description is not quite characteristic; and secondly, because the species is so rare, that Brehm is the only author who mentions it as a European bird.* This bird differs at first sight from *Turdus viscivorus*, *Linn.*, by its three outer tail quills which are not tipped with white; from *Turdus pilaris*, *Linn.* and *Turdus migratorius*, *Linn.* by its head, which is neither ash-colored nor gray; from *Turdus musicus*, *Linn.* by its wing-coverts, which are not terminated by a whitish band, and by its breast, which is not brightly tinted with yellow; from *Turdus iliacus*, *Linn.* by the absence of the rufous stain on the flanks, and by the triangular shape of the dusky spots on the breast; from *Turdus torquatus*, *Linn.*, *T. merula*, *Linn.*, *T. atrogularis*, *Temm.*, *T. Naumannii*, *Temm.*, *T. Sibiricus*, *Pall.*, *T. solitarius*, *Swain.*, and *T. aureus*, *Hol.*, by the general colour of the plumage; from *Turdus pallidus*, *Pall.* by the absence of a band on the wing-coverts as well as of white tips to the tail-quills; from *Turdus aureus*, *Pall.* by the inferior wing-coverts, which are not brown; from *Turdus dubius*, *Brehm.* and *T. ruficollis*, *Pall.* by the breast, which is not tan-colored; from *Turdus minor*, *Richardson*, by its back, which is not "yellowish-brown, verging to orange-brown," and by the spots on its breast, which are clearly defined; from *Turdus Wilsoni*, *Bonap.*, by the second wing-quill, which is not equal to the fourth, and by its back, which is not brown; from *Turdus silens*, *Swain.*, by the second wing-quill not being equal to the sixth, and by the quills, which are not tipped with white. It is, besides, much smaller than any of these birds, the *Turdus minor* of the 'Fauna Boreali-Americana' excepted. This very rare thrush was unknown to Temminck. The head, nape, back, and rump are oil-green, of an uniform tint; the upper wing-coverts are of the same colour, and do not present the slightest traces of transverse bands as in *Turdus musicus*; the cheeks are yellowish, sprinkled with small dusky spots; the chin and throat are white, slightly tinted with yellow and spotless; the breast is white, inclining a little to very pale yellowish, and covered with numerous small dark triangular spots; these spots are smaller towards the throat, but become larger towards the lower parts, where their form becomes transversely oval; they cease along the middle of the abdomen, but extend some way along the flanks, where they soon verge into a large dusky-gray cloud which occupies the posterior portion of the flanks. The abdomen and under tail-coverts are pure white; the wing-quills are blackish, their exterior edge being very slightly bordered by a brownish line as in *Turdus iliacus*; the rectrices are brown above, grayish-black beneath; the under wing-coverts are white, with a few ashy spots; a black line preceded by a narrow yellow one descends from the angle of the bill, and extends along the sides of the throat; the upper mandible is blackish, the lower one yellow at the base; the rictus bears three or four stiff hairs; the legs, which are remarkably slight, are pale brownish. There exists no white supra-ocular band. The first wing-quill is rudimentary; the second is longer than the fourth; the third is the longest; the fifth is much shorter than the fourth; the sixth is much shorter than the fifth. The size of its body does not appear to be more than half that of *Turdus musicus* when they are laid side by side, and the bill is proportionally shorter than in that species. Latham's

* From a specimen killed in 1829 in the duchy of Anhalt Cöthn near the Elbe.

description of this bird says that it has dusky spots on a white ground on the breast; that the remainder of the under parts are white; that the back is olive brown; that the tail and wing-quills are brownish; and that the length is about seven inches. This answers to my bird, but these words might be applied to at least twenty different sorts of thrushes, were it not for the small size indicated.

Comparative dimensions of T. iliacus, T. musicus, and T. minor.

	T. iliacus.		T. musicus.		T. minor.	
	in.	lin.	in.	lin.	in.	lin.
Total length	9	0	9	2	6	7
Length of wing from the shoulder ...	4	6	4	6	4	0
Length of tail	3	1	3	1	2	3
Length of tarsus	1	1	1	2	1	0
Length of hallux	0	3	0	3	0	2
Length of its nail	0	3	0	2½	0	2
Length of middle toe with the nail ...	1	1	1	0	0	6
Length of bill from angle	0	5	0	7	0	5
Length of bill along the upper ridge ...	0	5½	0	5	0	4

—*Julian Deby; Laeken, October 20th, 1847.*

Occurrence of the Roller near Shelton Castle (Redcar ?).—Last July a pair of rollers were seen in a plantation called “Forty Pence,” belonging to John Thomas Wharton, Esq., of Shelton Castle. One of which was shot by Mr. Rickaby, who farms the land adjoining the said plantation, and is now in the possession of Mr. Lawrence Wetherell, of Guisboro’. This proved, on dissection, to be a female having eggs in it, consequently we may infer that the other seen was a male, and that they would have bred in that locality if they had not been disturbed.—*T. S. Rudd; Redcar, November 4th, 1847.*

Disappearance of Swallows at Penmanshiel, Berwickshire.—The swallows left us about the 9th of September, immediately after their last broods had become fledged, and the martins disappeared from the coast a day or two after. I was much surprised, however, on the morning of the 3rd instant (October) to see five or six of the swallows glide rapidly past, uttering their usual sharp note, and disappear to the south. This, doubtless, was a party of loiterers, on their way to overtake our departed summer friends.—*James Hardy; Penmanshiel, by Cockburnspath, Berwickshire, October 5th, 1847.*

Female Bullfinch in Plumage of Male.—A few months back I wrote to Mr. Waterton to ask him to have the goodness to explain to me the following fact: I have in my possession a bullfinch which I always thought was a cock, but one morning, on looking into the cage, I saw an egg in it. Great was my surprise; I took out the egg and examined it; it was not a perfect egg, it was soft. The bird has never been, as far as I know, with any other bird: I inquired of the man who used to have charge of him, if it had ever been with another bird, and he answered negatively. A few mornings after that, I found another egg like the other, not perfect. I wrote to Mr. Waterton twice, and mentioned in one of my letters, that perhaps lime was the cause of an imperfect egg; he said he did not think that quite the case. I must make a great many excuses to you for not writing sooner, as Mr. Waterton said the fact was most worthy of investigation. I should not myself have thought it anything worthy of looking into if he had not said so. Perhaps you might be so kind as to give me some information

on the subject.—*Bertram Talbot ; Alton Towers, near Cheadle, Staffordshire, October 22nd, 1847.*

Female Fowl in Plumage of Male.—Last autumn I saw at the house of Mr. Partington, gamekeeper to Lord Lilford, a domestic fowl in male plumage, which Mrs. Partington assured me had laid several eggs. It had the appearance of a young game cock after the first moult, but the colour of the feathers was not quite so rich. Its spurs and wattles were fully developed, but the comb not so much so in proportion. There are two facts with regard to this bird which I think worth recording in the 'Zoologist.' The one is, that it assumed the male plumage so early in the second moult; the other is, that it did not commence laying until after it had completed that moult. I have lately ascertained that this bird has been killed, and that upon opening it, a cluster of eggs in embryo was found. In White's 'Natural History of Selborne' (pages 93 and 94) some instances similar to the above are given, with this exception, that the youngest age named at which the hen changed her plumage for that of the cock is thirteen years. The passage commences thus: "There is a remarkable physiological fact in the animal economy,—that of the females of many species assuming somewhat of the character of the male *when they become aged.*"—*Nicholas Cooke ; Hope Mills, Warrington, November 25th, 1847.*

Occurrence of the Little Bustard at Kirton Lindsey, Lincolnshire.—A most beautiful male specimen of the little bustard (*Otis tetrax*) was shot at Kirton Lindsey on the 7th of October last: its length from the tip of the back to the end of the tail was twenty-three inches; the expansion of its wings forty-four inches; its weight two pounds and a quarter: it has a splendid row of feathers down each side of the neck: its craw was filled with caterpillars of the common yellow underwing moth, small shelled snails, &c.—*Alfred Roberts ; Brigg, Lincolnshire, Dec. 7th, 1847.*

Occurrence of Temminck's Stint near Oxford.—I beg to forward a notice of the occurrence of Temminck's stint (*Tringa Temminckii*) near Oxford. A pair of adult birds were killed upon the banks of the river Isis in Port Meadow, August 24th. They were shot by a lock-keeper named Bossom, and have been set up by Mr. Orman, St. Aldates, Oxford.—*H. Roundell ; Christ Church, Oxford, Oct. 27th, 1847.*

Occurrence of the young of the Little Bittern near Enfield.—I have lately received a specimen of the little bittern (*Ardea minor*, Linn.) killed September 18th, 1847, on the river Lea, near Enfield, by a bargeman. It is a young bird of the year, and I think has been bred in the neighbourhood, as there is some remains of the nestling down, and it is not fully fledged.—*Fredk. Bond ; Kingsbury, Oct. 11th, 1847.*

Occurrence of the Speckled Diver at Worcester.—A specimen of the speckled diver was shot about a fortnight ago in the Severn, just opposite the Deanery, Worcester. It is now in the possession of a gentleman residing in this parish.—*W. W. Cooper ; Claines, near Worcester, Dec. 15th, 1847.*

Anecdote of a Snake.—I have recently been told the following anecdote by a gentleman, for whose veracity I can vouch, which I think is strongly illustrative of the sagacity of the snake. If you think it worthy of a corner in the 'Zoologist,' you will oblige by giving it one. Some time since, as the servant men belonging to my friend were coming in to dinner, they had to pass through a small plantation, about one hundred paces from the house, in which they saw two young snakes and an old one; they

succeeded in killing the young ones, but the old one escaped, and the men not being able to find her, took the young ones and went to their dinner, leaving them outside the kitchen-door. When they had dined, they were astonished to find the old snake with her dead offspring. She must either have followed them in the distance, or, which I think is more probable, have smelt their foot-prints, and so discovered the bodies of her children.—*E. Peacock, Jun. ; Messingham, Kirton Lindsey, Lincolnshire, Dec. 7th, 1847.*

Breeding of the Salmon.—Indebted to a friend for the perusal of 'The Angler's Companion to the Rivers and Lochs of Scotland,' by Thos. Tod Stoddart, Blackwood, Edinburgh, 1847. I have been so struck with his observations in the tenth chapter on the breeding of salmon, that I shall here endeavour to lay them briefly before the readers of the 'Zoologist.' They tend to such a revolution of the generally received opinion on the subject, and at the same time support the analogy of nature, that they become very interesting, and call upon all, who have the opportunity of so doing, to make further and fuller inquiry. He agrees with Mr. Shaw, of Drumlanrig, and claims a priority in the advocacy of the theory, that the parr is the young of the salmon; but differs entirely from the opinion of Mr. Shaw,—an opinion almost universally entertained,—that the ova can be or ever have been naturally or artificially impregnated *after* they shall have been passed from the ovarium of the female to the external air, however ripe or mature they may have been, or however carefully extracted and treated thereafter. After quoting at large the well known account given by Mr. Shaw of his experiments with the ova of salmon, Mr. Stoddart contends that the whole of them and the conclusions drawn from them, are based upon the false but popular notion that the ova of the salmon, previous to their being emitted, are in an unimpregnated state—that, until brought then into actual contact with the milt, they are, in fact, perfectly barren and unproductive. Mr. Stoddart holds it a palpable anomaly, that no direct act of coition should take place between the milter and the spawner and *that*, long previous to the effusion of the ova; and that it is scarcely an argument to say that fish are deficient in organs suited for this act. He argues, or rather asks, if worms and animals both above and below fish in the scale of creation have such organs why should the finny tribe be without them. He denies that they are so destitute, states it as a well ascertained fact that three-fourths of the salmon and grilse which ascend Scottish rivers are female fish, and that one and all of these, without exception, are found to carry ova more or less developed according to the season of the year or age of the fish. "Nay, more, after having spawned, and while still in the kelt state, before their return to the sea, many, I do say not all, have the new roe distinctly developed." These numbers preclude the idea of a *pairing* off in the breeding season. He quotes Mr. Shaw, as admitting the fact that a female adult salmon was taken from the river, in the act of spawning, in absence of the male, which he (Mr. Stoddart) maintains is not at all an unfrequent case, but which, on the common theory of expelling unimpregnated ova, would show an utter waste and prodigality. The salmon thus engaged is likened to the hen-bird laying her ova—whether barren or fertile; and the prevalent notion, of the mode in which the ova of fish are fertilized, is held up as being as ridiculous as if the barn-door cock had to fertilize the egg after it had been dropped from his mate. Again, it is stated as being very absurd to think that in the midst of a resisting and decomposing medium, such as water, the vivifying power

of impregnation could be communicated by, and be made to depend upon, the contact of two bodies disagreeing so much in their nature and specific gravity, as do the milt and roe of fish. While both he and Mr. Shaw admit that the milt of the male parr seven or eight months old, is fully matured, but that the roe of the female of the same age is just developed and barely distinguishable to the naked eye, Mr. Stoddart's solution is that the milt of the male parr is thus thoroughly matured in order that by an act or acts of coition, previous to entering the salt water, the ovaria of his contemporaneous mate may be vivified—thus anticipating her return from the sea as a grilse, to deposit not a bed of inert slough, but active and endowed spawn. Mr. Stoddart supposes that polygamy obtains among the salmon tribes, and states that in the Blackwater, near Contin, Rosshire, he saw a collection of above fifty fishes among which were only three males, and these, notwithstanding the immense disproportion in point of numbers, so jealously inclined towards each other, as to prefer fighting furiously among themselves, to engaging in acts of duty and affection towards the other sex; while many of the females seemed in the act of spawning unattended by any of the milts. He allows that the female, when on the redd, or in the act of spawning, is frequently attended by a male fish, which hovers faithfully in her rear, and, without making any attempt to disturb her, drives off every other male fish or common trout that may approach; but affirms that it is not until after the female has shed her spawn that there is any act of coition, and that the effect of this act is the impregnation of her deposit of next year and not of that which has been already left on the redd. Towards the end of this chapter Mr. Stoddart remarks, that were the commonly received opinion the correct one, as regards the impregnation of the ova of fish, our streams would be swarming with hybrids, and that the pure and legitimate breeds would be lost or soon thrown into the back ground. The 'Angler in Ireland,' and the late Sir Anthony Carlisle, and also Mr. Younger, of St. Boswell's, are referred to as expressing opinions favorable to those adopted by Mr. Stoddart. To this gentleman himself and to those who have read his interesting and instructive volume, I may appear to have barely done justice to the subject laid down in his pages. This appearance may arise from the narrow limits to which I have here confined myself. I trust, however, I have not misrepresented his statements. I shall be satisfied, if, by this short notice, I succeed in turning the attention of others to a point in Natural History, whose continued obscurity and debatableness are good grounds of reflection upon the host of observers that are now abroad, in summer at least, by the sides of almost every stream in Scotland.—*G. Gordon; Birnie, by Elgin, Dec. 2nd, 1847.*

Fishes and the Law of Kindness.—In a quarter of the town of Hingham, known as Rockynook, there is a pond, where a little girl, not six years old, who resides near the bank, has tamed the fishes to a remarkable degree. She began by throwing crumbs in the water. Gradually the fishes learned to distinguish her footsteps, and darted to the edge whenever she approached; and now they will actually feed out of her hand and allow her to touch their scaly sides. A venerable turtle is among her regular pensioners. The control of Van Amburgh over his wild beasts is not more surprising than that which this little girl has attained over her finny playmates. The fishes will have nothing to do with any but their tried friend. They will trust no one else, let him come with provender ever so tempting. Even fishes are not so cold-blooded but they will recognise the law of kindness, and yield to its all-embracing power.—*Boston Transcript, United States.*

Notes on the Fishes in the District of the Land's End.

By R. Q. COUCH, Esq., M.R.C.S.L., &c.

(Concluded from page 1831).

Great Lant, Sand Eel, *Ammodytes Tobianus*. Common on all parts of the district from St. Ives to Gunwalloe. I have seen a specimen fourteen inches long.

Lant, Launce, *A. lancea*. Abundant in sand near low-water mark. This is a more gregarious species than the last. In July and August they frequent our bays in small companies, and are eagerly pursued by the pollack. It burrows in the sand, and like all fish of our shores with similar habits, it has a pulsating sanguineous sac at the base of the caudal fin. Marsupial.

Great Sea-Adder, *Syngnathus acus*. Common in deep water and rocky ground. I have taken it commonly in a trawl and trammel net, in crab-pots, and have found it washed on shore after a summer's storm. It frequents marshy and weedy bottoms, and the borders of rough ground. Marsupial.

Sea-Adder, *S. Typhle*. Not uncommon in different parts of Mount's Bay, St. Ives' Bay, and Whitsand Bay, Land's End. Habits similar to the last.

Painted Sea-Adder, *S. æquoreus*. Abundant in fifteen or twenty fathoms water, and very common in fifty fathoms, and at mid-channel. This species is said to be rare; but its scarcity depends on its inhabiting deep water, where it is rarely seen by the naturalists. In May and June, and frequently in July, and occasionally in August, these fish rise to the surface of the water however it may be, and bask themselves in the sun. They retain their position at the surface by clasping with their tails the cords and buoys of the crab-pots, sticks, or any other substance they may find floating at the surface. The whole of the caudal portion of the body is coiled round the stick or cord, and the heads lie either horizontally or at right angles to the surface. In some seasons, the buoy-ropes of the crab-pots are literally obscured by them from the surface of the water down as far as the eye can penetrate.

Stiff Sea-Adder, Straight-nosed Pipe Fish, *S. ophideon*. Not uncommon in moderately deep water; with similar habits to the *S. æquoreus*.

Small Sea-Adder, *S. anguineus*, Jenyns. Occasionally in company with *S. æquoreus*.

Worm Sea-Adder, *S. lumbriciformis*. Common under stones near low-water mark.

Pennant's Globe Fish, *Tetrodon Pennantii*. I have never seen this fish; but three specimens are recorded to have been taken on the Cornish shores. Donovan mentions one, and Pennant and Dr. Boase obtained specimens in Mount's Bay.

Short Sun Fish, *Orthogoriscus Mola*. Common in the summer off the Land's End and Mount's Bay.

Oblong Sun Fish, *O. oblongus*. This is a rarer fish than *O. Mola*, but it is not unfrequently met with off Mount's Bay. I have seen specimens measuring only three feet in length, and others more than five. There appears to be either a variety of this, or a distinct species that occasionally visits our shores. It is intermediate in form to the two now mentioned. I have frequently heard the fishermen speak of it, but I never saw a specimen but on one occasion, and that was in Mount's Bay: we were unable to secure it, but it was more oval than *O. Mola*, and considerably less so than *O. oblongus*. The determination of this must therefore be left to a more fortunate opportunity.

Sturgeon, *Acipenser sturio*. Rare; taken occasionally at Hayle, and in the Bristol Channel, and in Mount's Bay; but very rarely in the latter spot.

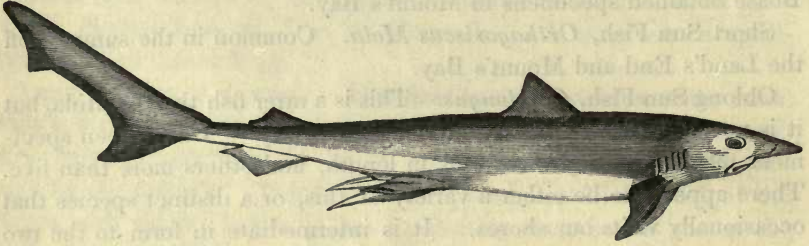
Small Spotted Dog, *Scyllium canicula*. Frequently called "rough," or "row-hound." Most frequent on the southern shores.

Larger Spotted Dog, *S. catulus*. Common. Commonly called "nurse-hound." Frequents deep water and rough ground; it takes its food by prowling, and feeds chiefly by night.

The Black-mouthed Dog Fish, *S. melanostomum*. Has been taken on the south coast of Cornwall, but not within the district of the Land's End.

The White Shark, *Carcharias vulgaris*. Not uncommon off the Land's End and Tol-pedn-Penwith during the summer and autumnal months. It has been taken in Mount's Bay. The largest specimen I ever saw was near Cape Cornwall; its exact length we could not, of course, ascertain; but a gentleman who was with me estimated it at twenty feet. He had visited warm climates, and recognised the monster while it swam close to the rocks, as an old acquaintance, and the terror of our sailors. It swam near or rather at the surface. The fishermen inform me that they see several every summer, and that they carefully avoid them. Several sharks of smaller size, which were seen at the same time, the boatmen thought to be the young of the

larger kind. In appearance, these last so greatly resembled a specimen I had seen and examined several years before, that I have but little doubt that they are identical. A figure of the specimen to which I refer, is annexed to assist ichthyologists in determining the point.



Thrasher, *C. vulpes*. Not very uncommon during the summer and autumnal months. The presence of this extraordinary creature is soon ascertained, by the noise it makes in beating the water with its enormously long tail.

Blue Shark, *C. glaucus*. Abundant during the latter part of summer and early in the autumn. They are frequently taken by the drift-net boats during the pilchard fishery. I have seen so many as seventy taken by the Mount's Bay boats during a single night's fishing, and these have varied in size from two to five feet. They are not, strictly speaking, gregarious, but unite from the accidental circumstance of their being in pursuit of the same prey. It is from their pursuit of the pilchard that they become entangled in the fishermen's net.

Porbeagle, *Lamna cornubica*. Common during the summer; associating in companies to pursue their prey.

Miller Dog, *Galeus vulgaris*. Common in July and August, and less so in September. In habits it resembles the blue shark, but is not so rapacious, probably owing to its being less powerful. It differs, however, in more frequently devouring dead food, and living nearer the ground. It frequently attains a large size, growing to about six feet in length. During the winter, it keeps in deep water over a sandy soil. The young are frequently confounded by the fishermen with the picked dog, to which, however, the resemblance is not so great. The ova are developed quickly, and in companies varying from twenty to thirty-three, or even more. The young are excluded alive in rapid succession: they attain their full size in about two years, but breed when about half-grown.

Smooth Hound, *Mustela levis*. Common in summer and autumn during the pilchard fishery. The teeth vary in form from the generality of the sharks, and approach those of the thornback ray in their general arrangement; and hence this species is frequently called by our fishermen "ray-mouth hound."

Picked Dog, Spear Dog, *Spinax acanthias*. Very abundant at all seasons. In winter it retires to deep water, and feeds near the ground; in summer it approaches the shores in multitudes. It breeds through the summer and autumn. It brings forth its young alive, and in pairs. The ova are developed in the ovaries with regularity, there rarely being more than two of one size. The development is rapid; and by the time the young are born, two new ova are ready to descend through the oviduct. In referring to the young of this species, a remark may be made on a fœtal peculiarity, which is applicable to the young of all the British sharks and rays, but which is chiefly interesting from its similarity to the fœtal growth in Batrachian reptiles; beautifully illustrating the unity of the operations of nature. The young of this species, while still *in utero*, have the temporary external branchiæ, which are so observable in the tadpole. These filaments are simple threads, varying to about three-fourths of an inch in length, and are traversed by a simple reflected blood-vessel: they are attached only to the anterior gills of each branchial cavity: they disappear just before birth. The young are born alive, and for the first few days, or perhaps weeks, when they are so weak as to be unable to protect themselves, the fishermen inform me that the old ones remain with them in sheltered and sandy bays, or immediate neighbourhood, slowly wandering from spot to spot. The young imitating the old in almost every particular. When, however, the young have acquired some degree of firmness, this comparative inactivity is exchanged for that activity and energy so characteristic of the race. The old and young together, course large shoals of the smaller fish with extraordinary perseverance, and on which when caught the old alone can feed. This habit of joining the old ones in pursuit of prey, may be called instinct, but the young are educated to it from birth. I have seen this strange commixture of old and young, when they have been captured with a seine, and on one occasion twenty thousand were so enclosed.

The two dorsal spines are powerful weapons of defence; when attacked, the creatures are said to bend themselves into an arch or bow, and then violently to spring asunder in opposite directions.

Hammer-headed Shark, *Zygæna Malleus*. A specimen of ham-

mer-headed shark has been taken in Mount's Bay by a mackerel boat, and the skeleton is preserved in the museum of the Penzance Natural History Society, but whether it be the *Malleus* or not I cannot determine, not having had an opportunity of examining it in a recent state.

Angel Fish, *Squatina angelus*. This strange looking fish, beside bearing the name of angel fish, is frequently called a "monk," and still more commonly a "sea-devil." This strange contrariety of names is unaccountable, unless, indeed, we suppose that the original name was sea-monk, which from its hooded appearance might be the case; and that one set of religionists might have named it "angel" in compliment to this resemblance, and another "devil," from opposite views; the *odium theologicum* being quite capable of extending to the two extremes. It is a very voracious fish; feeding on sandy soils; its chief food is the smaller flat fish inhabiting such localities. In the sandy spots about the Land's End, where the sand is granitic and shelly, they are of a much lighter colour than when taken in Mount's Bay and other parts of the Channel.

Cramp Ray, *Torpedo nobiliana*? Six specimens taken within a very short time at the eastern side of Mousehole Island Mounts; four of which I had an opportunity of examining. All the specimens examined did not at all answer to the description of the *Torpedo vulgaris* of Fleming. The specimen selected for description, measured three feet three inches from the snout to the end of the tail; and two feet two and a half inches in its greatest breadth. The colour varied in the different specimens, but the general tint in the whole was a darkish purple or neutral tint, variously clouded, but without spots. The eyes are approximated, and about three inches from the median point of the snout; the temporal orifices are crescentic in form, larger than the eyes, immediately behind which they are situated, they converge posteriorly and have plain margins. Dorsal fins, two, near the caudal; the anterior one the largest. The caudal fin is large, being about eight inches in its transverse diameter. The body is very thick, fleshy, solid, and composed of two portions or lobes on each side, the largest being the most anterior. The skin is smooth and slimy; the under surface is white, uneven, and variegated with deep pink. The mouth is small, crescentic, two inches and a half from angle to angle. Teeth small, numerous, and conical.

Compared with Mr. Yarrell's figure (p. 410, first edition), all the specimens examined were wider in proportion to the length, and the form of the pectoral fins more irregular. The eyes are smaller, tem-

poral orifices closer to the eyes, semilunar and not fringed. The snout is more prominent than is there represented. From a careful examination, I should think the species under consideration will prove to be the *Torpedo nobiliana* or new British *Torpedo* of Yarrell. A specimen is preserved in the museum of the Natural History Society of Penzance.

It is very remarkable that so many specimens should have been taken in the course of one summer within half a mile of each other. It will be found, I think, not so rare a British fish as is commonly supposed.

Skate, *R. batis*. Common. When it grows to a large size it is not used as food, being too coarse, but is consigned to the crabbers for the baiting their crab-pots. The whole of the rays are generally thought to be fish of slow movements, or that they move only by sudden springs, and yet I have frequently seen mackerel and other active species in their stomachs, with every appearance of having been swallowed alive.

Long-nosed Skate, *R. chagrined*. Not uncommon. This species, like several others of the *Raiidæ*, possesses secondary sexual characters, which alter with age. In the male the teeth, which in youth are flat, like those of the female, become sharp and conical, especially towards the median line.

Sharp-nosed Ray, *R. oxyrhynchus*. Burton Skate. Common. Most, if not all the rays, rise to the surface of the water and bask in the sun during the summer and autumn.

Spotted Ray, *R. maculata*. Sandy Ray. Common. The large spot is frequently deficient, and occasionally there are many of them.

Sandy Ray, *R. radula*. This is quite distinct from *R. maculata*. The form alone being sufficient for specific separation. Rarely used as food. It keeps in deep water over a sandy soil.

Painted Ray, *R. microcellata*. Two specimens taken in Mount's Bay.

Thornback, *R. clavata*. Common.

Fire Flare, *Trigon pastinacea*. A single specimen examined, from Whitsand Bay. Sennen.

Eagle Ray, *Myliobatis aquila*. I trawled up the head of a species of *Myliobatis*, off Limorna, but too much injured to determine the species. Since then an egg-case has been taken at Fowey with the young or embryo in it, so that no doubt now remains of our having a

Myliobatis, if not *M. aquila*. An account of this specimen, by my father, will appear as a postscript to the paper.

Lamprey, *Petromyzon marinus*. Common. Used only as bait.

Silver Lamprey, *P. fluviatilis*. Common in the streams in spring.

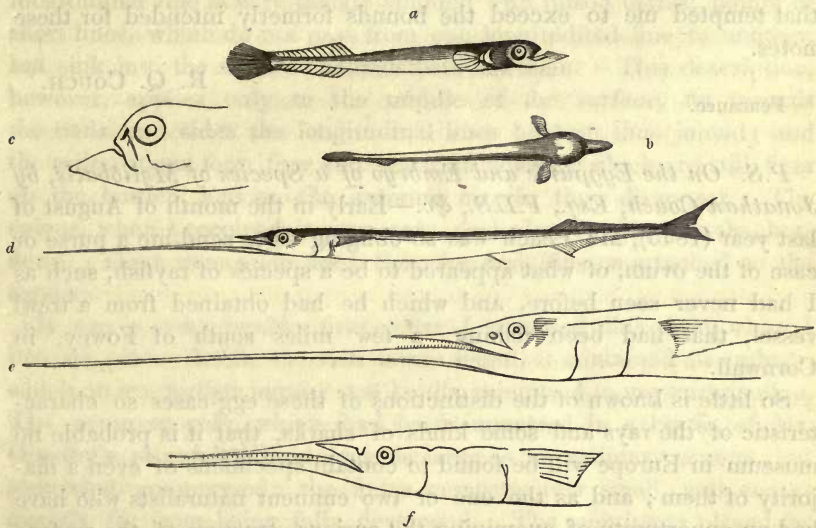
Mud Lamprey, *Ammocetes branchialis*. Common.

Species omitted.

European Hemiramphus, Young Greenbone, *Hemiramphus Europæus*. This species was first made known as British, by my father, in a paper in the 'Transactions of the Linnean Society,' and it has been figured by Mr. Yarrell in the Supplement to the first edition of his 'British Fishes.' It has since been taken by Mr. Edward Clarke, of Ipswich, and by myself in Mount's Bay. I caught several in a pool during the early part of the pilchard season, and consequently about August. There is a great deal of interest attached to this species, from its general figure and character; it seems to belong to the genus Hemiramphus, and yet no specimen of that genus has ever been captured in the European seas. On showing my specimens to the fishermen, they immediately called it the young of the *Belone vulgaris*, which it very greatly resembles; it differs chiefly in the remarkable deficiency of the upper jaw. If it belongs to the Hemiramphus, the spawn must be deposited in our seas, and near the shores; and it is to be hoped all naturalists will be on the alert to discover so remarkable a creature. They swim about at the surface in companies, and have much the habits of the garfish. The fins are similar and similarly situated in both. My father's specimens were taken in July, Mr. Clarke's in August, and those I took were captured the first week in August. The following is closely allied to it.

Hemiramphus? obtusus. This species was also taken in August, 1846 in a pool near low-water mark in Mount's Bay. This my father also first described in 1841. His account was read before the Linnean Society in June, 1842. He says, "Their length is half an inch; head proportionally large, especially across; the body slender; eye large; snout in front of it short and abrupt; upper jaw arched; under stout, projecting to a considerable extent, but in some specimens more than in others. the point declining, and the sides not appearing to be formed of parallel rami of the jaw, but rather of a cartilaginous substance; vent placed posteriorly; body, which is equal from the head to this point, tapering thence to the tail; lateral line, so far as it could be distinguished, straight; dorsal and anal fins

single ; posterior, opposite, the latter beginning close behind the vent, and both reaching nearly to the tail, their membrane at first broader, but narrowing in its progress ; pectoral fins and tail round. The colours of different specimens varied greatly ; some being dark, with a tint of green ; others cream-coloured, but sprinkled with specks, &c." The ventral fin small and very obscure, to be seen only in the larger specimens. Those specimens I saw myself were of a yellowish sap-green colour.*



a. *Hemiramphus? obtusus* (magnified) viewed laterally. b. The same viewed dorsally. c. Head of the same. d. *Hemiramphus Europæus*. e. Head of the same. f. Head of *Belone vulgaris*.

The relative shortness of the upper jaw varied in the different specimens, and generally speaking, the smaller the specimen the shorter the jaw. At the time I examined them, it occurred to me that they were the younger stage of the *H. Europæus*. I have seen the young of the *Belone vulgaris* about six or seven inches long, and though both jaws were not equal, yet they were sufficiently so to prevent any appearance of deformity, which is so characteristic of the present species. If the young of so common a species as *B. vulgaris*, why are they not more abundant? and if they belong to a distinct fish, how is it that it has never yet been discovered? These queries I shall endeavour to answer during the next summer.

* In a letter to me, dated December 13th, 1847, Mr. Jonathan Couch expresses a doubt whether this little fish can properly be classed with the *Hemiramphus*.—*E. N.*

The list of the fish ascertained, as belonging to the Land's End, is now brought to a close. The notes have extended to a greater length than was at first intended, and yet they have been greatly abridged lest I should overstep the bounds at the service of such investigations. From the peculiar and extreme western position of the district, and from its being almost surrounded by water, the opportunities for ichthyological investigations are great, and such as would interest observers in other parts of the kingdom; it is these considerations alone that tempted me to exceed the bounds formerly intended for these notes.

R. Q. COUCH.

Penzance.

P.S. On the Eggpurse and Embryo of a Species of Myliobatis, by Jonathan Couch, Esq., F.L.S., &c.—Early in the month of August of last year (1845), Mr. Peach was so obliging as to send me a purse or case of the ovum, of what appeared to be a species of rayfish, such as I had never seen before, and which he had obtained from a trawl vessel, that had been fishing, a few miles south of Fowey, in Cornwall.

So little is known of the distinctions of these egg-cases so characteristic of the rays and some kinds of sharks, that it is probable no museum in Europe will be found to contain specimens of even a majority of them; and as the one or two eminent naturalists who have had an opportunity of examining the curious structure of the surface of this specimen were unable to refer it to any of the known cartilaginous fishes, and the accident of finding such a one on a beach may be the only proof of the probable presence of the parent, I have thought it well to give a minute description.

The length of the case was $6\frac{1}{2}$ inches; the breadth $4\frac{3}{8}$ inches; length of the processes at the anterior angles $2\frac{1}{2}$ inches, flat, or thin, and tapering to their terminations; but as the anterior border of the case is concave, these tendrils appear simply as elongations of its surface. The posterior margin is straight; and consequently the origin of the tendrils is better marked. They are narrower than the anterior; and end in a thin and slender cord, their length being $7\frac{1}{2}$ inches. I have seen the purse or case of the common skate (*R. batis*) much longer than this, but in no instance more than two-thirds as wide; and consequently in proportion this is the widest of any. The longer tendrils also exceed in length those of any of the rays that I have seen; though they yield to those of the common oviparous shark (*Scyllium*

canicula), or that of the large-spotted dogfish or nurse-hound (*Scylium catulus*), as represented in Mr. Thompson's figure. But the greater distinction is in the structure of the surface, which in the cases of all the rays that I have examined, is smooth or plain, with a longitudinal direction of the fibre. In the present instance this structure is peculiar and beautiful; the surface being thickly set with raised longitudinal lines, closely crossed with dots or raised lines;—that is, each longitudinal line is very thickly studded with raised marks, points or short lines, which do not pass from one longitudinal line to another, but sink into the minute channels between them. This description, however, applies only to the middle of the surface, for towards the ends and sides the longitudinal lines become thus joined; and the reticulations form fine and beautiful squares, which are still finer on the border; and on the extreme margin they disappear. The colour, when I received it, was very dark, but browner at the borders. There were a few small *Serpulæ* and *Flustræ* attached to the surface.

It was a considerable time, after I obtained this case, when I became aware that at the time it was found, it contained an embryo, which on my further inquiry was kindly submitted to my examination. The ovum or yolk, which had been immersed in a bottle of Mr. Goadby's preserving fluid, was as large as an ordinary orange, but somewhat compressed: the fœtus comparatively small, and consequently far from being fully developed. The mouth was placed far under a projecting snout, which rose into an elevated vertex. The eyes large, projecting laterally from the sides of the head. The head distinct, joined to the body by a neck. Pectoral fins with a shoulder, as in the genus *Squatina*; the anterior angle advancing near to the eyes; their outer margin a little sloped, and passing backward in a direction corresponding with the outline of the body. Ventral fins small and slender. The situation of the branchiæ is well marked dorsally, with five lines, showing the number of orifices; branchial fibres long, as in the early state of other embryotic chondropterygious fishes.

The body is narrow, with a dorsal ridge that runs down the caudal portion to the end; and at a third of its length from the body this ridge begins to be bordered, as with a narrow fin, that seems to decrease again as it proceeds. This caudal portion has also a ridge beneath, which begins close to the vent; and on both sides there is a membranous border. The tail is long and narrow, tapering, but without an obvious fin towards the end.

There can be little question that this fish belongs to the genus *Myliobatis* of Cuvier, which is characterized by having the pectoral expansion separated from the head, which organ becomes thus exerted, after the manner of the genus *Squatina*, but from which latter, among other important particulars, the present differs in having the mouth placed far beneath the snout. In the adult state also, it is marked by a small dorsal fin, and close behind it, is a lengthened spine situated anteriorly on the caudal elongation. That in an embryotic specimen the dorsal fin should be obscure, is not to be wondered at; for in numerous specimens of several species of the common rays that I have obtained from the egg-case, I have constantly found the caudal elongation to differ much from what is seen in the adult fish; and I believe that all of them are at that period destitute of the ordinary spines. It is probable that the direction of the expansion in the pectorals, in this species, is subject to variety in different stages of growth; or these parts may have been compressed by the walls of the case; for in Mr. Yarrell's figure of what may be supposed the same species ('History of British Fishes,' vol. ii. second edition), and in one of Gesner's figures, in his 'Nomenclator Aquatilium, (p. 121)' which is copied from Belon, the pectorals are represented as extended at right angles from the body; while in another, in the same volume, the extremity is directly obliquely backward; as it is also in the sketch taken from the present specimen. It may be from this direction of the wings that this fish has been fancifully compared to a bird; and hence it is denominated a sea-eagle. Ruysch, whose figures are for the most part copies from preceding authors without being improvements on the originals, has at Plate 9, fig. 9 given a tolerably characteristic likeness; and he remarks, that this fish has been called sea-toad, from the resemblance of the form of the head to that creature; and the comparison seems appropriate, from the elevation of its head, and the lateral and projecting eyes. The same author, from his own authority, says that this fish is viviparous; an assertion which the foregoing account shows to be incorrect.

JONATHAN COUCH.

Polperro.

Habits of the Pond Mussel. — Having lately had a pond drained to within a few inches of the bottom, I have had frequent opportunities of observing the economy of the *Anodon* or pond mussel, of which there are great numbers in the mud. Their manner of locomotion, though slow, is extremely regular, their tracks being very discernible in the soft mud. If the *Anodon* is furnished, as its congeners are, with a bys-

sus, it certainly never makes use of it, at least not in this situation, as I have never found any of them attached by it, either to one another or to extraneous substances, to the latter indeed, in this instance they cannot, as the pond is in the peat moor, and there is neither stone nor any other substance on which it could possibly fix itself; in specimens which I have opened I have not succeeded in finding it, although I have in every case observed the small foot, its essential instrument of locomotion. I have never heard any good account of the food of this mollusk, and its manner of eating: from my own observation it appears to protrude a retiform substance through which it very probably takes in animalculæ, or perhaps decaying animal or vegetable matter. The Anodon is found in great abundance in this neighbourhood, as well in the Trent, which at high tides is here salt water as in our ponds and drains. It furnishes a very favourite repast for the herons, which evince great dexterity in opening the shell. It attains a considerable size, some I have seen being five inches in length. — *E. S. Peacock, Jun; Bottesford-on-Trent, Lincolnshire, March 16th, 1847.*

A word on long series.— Allow me to enter my protest against the practice which now obtains among our collectors of British Lepidoptera of keeping in their cabinets unreasonably long series of every species. I admit that the old system of having only four or five individuals of a species is not to be defended when such species is variable, but on the other hand, the keeping of twenty specimens answers no scientific purpose when the characters of a species are constant. It may be all very well for those who have no other purpose than making a cabinet a series of pretty pictures, and the contrast presented by whole rows of species may be very gratifying to their feelings. But besides the degradation thus inflicted on science, rare species are confined to the possession of few persons until they have made up their "row," instead of being diffused among and increasing the knowledge of many. I may add, without intending any self-laudation, that if I had kept the fashionably-long series of twelve or twenty, thousands of specimens would now be in my cabinet instead of being diffused through the kingdom, and the collections of my entomological brethren would be to a like extent deficient, at least as far as I am concerned. When speaking to one of the *plus* gentlemen lately on this subject and showing the folly of the system, the best answer I could get was "that Mr. ——— did it, and therefore it must be proper;" and this, I believe, is the best reply that the majority of its adherents could give. In fine, "it is a great evil, which is increasing and ought to be diminished."—*J. W. Douglas; 19, Nelson Square, Peckham, November 20th, 1847.*

On the Entomological Zones of the Pyrénées.—At the meeting of the Académie des Sciences on the 10th of May, 1847, was read a paper on the above subject by M. Léon Dufour.

"Insects," says the author, "like plants, are amenable to certain meteorological conditions which favour, modify, or altogether prevent their fixed residence in certain determinate zones. I say *fixed* residence, in opposition to a temporary station—a vagrant and transitory habitation like that of certain Hymenoptera, Diptera, and Lepidoptera, which, during their active aerial existence, are the free denizens of many zones, of which they are never more than the nomadic inhabitants.

"Insects possess a great advantage over plants in being endowed with a power of locomotion, whereby they are enabled to extend their zone of residence; but as a re-

sult of the superiority of their organization and its physiological consequences, though chiefly from their sensibility to external influences, they are unable to endure certain low degrees of temperature wherein many plants will grow and perpetuate their species. Thus, at the culminating points where *Ranunculus glacialis* and *Saxifraga groenlandica* are found, that is to say at an elevation of about 3000 metres, I have never met with insects permanently established, such as certain Carabites, Curculionites and Forficulites, whose young are freely produced 500 or 600 metres lower down; the entomologist would consequently lose both his time and his labour in hunting for these on the summits of the Pic d'Ossan, of the Monné, of the Pic de Geré, of the Piquette d'Endrellits, the Pic du Midi, &c. He might by chance, on some sunny day towards the end of August, capture a rapidly flying *Bombus*, which had ventured into those elevated regions to plunder their flowers, or he might meet with a common *Syrphus*, or a butterfly belonging to the embrowned genus of *Satyrus*, rapidly traversing such localities and eluding attempts to enclose it in the net.

"The climatal conditions of these altitudes are incompatible with the maintenance of animal life in insects with a permanent domicile. Snow which covers the summits of mountains and their approaches for at least half the year, is opposed to all the necessary conditions of life and means of subsistence of the perfect insect, and more especially to those of the larva, whose power of locomotion is more restricted, and its susceptibility much greater. Thus the region called by botanists the upper alpine zone would yield nothing or next to nothing to entomological researches.

"Plants, by the normal development of their periods of evolution, appear to me to define, much better than all the lines laid down upon maps, the general mean temperature and the climatal constitution of localities. Under these two relations, the palm, the olive, the fig, the maize, the vine, the oak, the beech, the birch, the fir, the rhododendron, the *Ranunculus glacialis*, &c., are to me more significant, more veridical, than degrees of latitude, longitude, and altitude, which necessarily lose somewhat of their mathematical precision when the question of the variable locality of a vegetable or animal organism is under consideration. Vegetation in itself, either directly or indirectly, influences the existence of insects. Those insects which are essentially phytophagous, seldom pass by a plant adapted for their support; and when the particular species best fitted to supply their wants is absent, by an admirable and providential botanical instinct they know how to have recourse to another species of the same genus, or, in default of this, to another genus of the same family. And as to insects destined to feed upon living prey, or to exist in some organic detritus, they also are in like manner amenable to the influence of the harmonious law of nature."

M. Dufour establishes two entomological zones for Pyrenean insects.

"1. *The sub-alpine entomological zone.* This comprises not only the forests of beech and fir, but the bogs and water, in short all the country below and of an equal altitude with these forests.

"2. *The alpine entomological zone.* This rises above the pine forests and commences with the rhododendron—the only social shrub of the Pyrénées."—*Revue Encyclopédique*, May, 1847.

Capture of rare Insects in England and Scotland.—It may be useful to your entomological friends to know that the following rare insects have been taken in England and Scotland.

Lophyrus Pini, Linn., *Lophyrus pallidus*, Illig. I bred both sexes in 1846 from caterpillars collected in Scotland.

Torymus caliginosus, Walk. The females I took in June, 1842, on the coast of Dorsetshire and in Hampshire. Previously, the genus was only known as an inhabitant of the South of France.

Coriscium quercetellum, Zell. In August and October, 1835, I captured two near Heron Court, Hampshire.

Coriscium alaudellum, Dup. I took a single specimen about the same time. These two *Tineæ* are unrecorded as British.

Callicera ænea, Fab. A beautiful specimen of this genus, new to Britain, was taken by Captain Chawner near Petersfield, Hants, and is in my cabinet.—*J. Curtis; Hayes, near Uxbridge, Nov. 30th, 1847.*

Occurrence of Colias Edusa near Broadway.—On the 27th of July I first saw a solitary specimen of *Colias Edusa* near this place by the side of a bye road; afterwards I captured several in different fields both male and female: they were for the most part on the common red clover. This is the first time I believe that this butterfly has been seen in this neighbourhood. *Cynthia Cardui* has been very abundant, almost every clover field containing several of them. I have also obtained for the first time here, *Argynnis Aglaia* and *Paphia*.—*John N. Beadles; Broadway, Oct. 5th, 1847.*

Occurrence of Colias Edusa and Sphinx Convolvuli in Scotland.—On the 3rd of September last I had the good fortune to capture a fine specimen of *Colias Edusa* on a steep bank near the sea in the neighbourhood of Lamlash, Island of Arran; the first, as far as I can learn which has been taken in Scotland. At the same place, and about the same time, I had an ineffectual hunt of about an hour's duration after *Sphinx Convolvuli*, whose light body and pink bands were very perceptible in the bright moon-light.—*Wyville T. C. Thomson; 8, High Street, Musselburgh, October 19th, 1847.*

Occurrence of Deilephila Celerio, &c. near Harleston.—Two specimens of the above rare insect were seen at a honeysuckle then in bloom in May last, at Shotford Hall, near Harleston; one of which (a very fine one) was captured, and the other caught in the net, but escaped before it could be secured. The captured one enriches the collection of Mr. Gurney, at Shotford Hall, where I have lately seen it. Very fine specimens of the scarcer Lepidopterous insects have been taken in this neighbourhood this summer. I took a pair of the *Thecla Rubi* at Haverland in June. I think these insects are not so scarce as is generally supposed, from their exercising a kind of deception, in suddenly dropping down amongst the grass when disturbed, and not resuming the wing till quiet is restored. The *Machaon* has been about as common as usual, Norfolk being one of its principal localities.—*Charles Muskett; Norwich, October 1st, 1847.*

Capture of Deilephila Galii at Rainham, Kent.—My cousin captured a fine female specimen of *Deilephila Galii* hovering over the flowers of the Verbena, about seven o'clock in the evening, on the 1st of September last, at Rainham, Kent.—*Henry Longley; 1, Eaton Place, Park Street, Grosvenor Square, Oct. 8th, 1847.*

Larva of the Death's-head Moth.—On the 2nd inst. I had a small larva of *Acherontia Atropos* brought me from Berwick Hill, a village about nine miles north-west.—*T. J. Bold; Newcastle-on-Tyne, Oct. 5th, 1847.*

Hops attractive to Moths.—While sugaring lately, I was surprised to find very few insects at the composition, in one part of a wood adjoining a hop-garden, while on the opposite side it was very attractive: this induced me to examine the hops, and I found feeding on the bloom, *Xanthia fulvago*, *Xanthia flavago*, *Xanthia croceago*, *Xanthia*

aurago, *Agrotis suffusa*, *Lemuris typica*, &c., &c.—*J. B. Ellman*; *Battel*, October 4th, 1847.

Occurrence of Gastropacha quercifolia at Battel.—On the 15th of June, this insect suddenly appeared in the town in tolerable quantity, at dusk. Several were caught and brought to me; I never heard of their being seen afterwards, though I was on the look out every evening for more than a week.—*James B. Ellman*, *Battel*, October 4th, 1847.

Occurrence of Calocampa vetusta near Huddersfield.—*Calocampa vetusta* has again made its appearance in the neighbourhood of Huddersfield. It was attracted to the sugar on the evening of the 9th of October. The caterpillar of this autumnal visitant is stated to feed on the genus *Carex*. Westwood figures it on *C. Vahlil*, an Alpine species, met with on the Clova mountains and other Scottish ranges. Now as this *Carex* is necessarily restricted as to locality, it is evident the caterpillar must find other nutriment. In these parts we have an unusual abundance of the commoner kinds, such as *C. præcox*, *panicea*, *vulpina*, *flava*, &c. The question is, on which of these does it feed, or does it feed indiscriminately on them all? If any of the contributors to the 'Zoologist' could state which of the commoner species supply food to the caterpillar, I doubt not, by a little attention to the herbage growing near such spots as are likely to furnish the perfect insect, it might be found by no means so local or so uncommon as is generally supposed.—*Peter Inchbald*; *Storthes Hall*, *Huddersfield*, October 9th, 1847.

Capture of Calocampa vetusta at Carron.—I fancy *Calocampa vetusta* will no longer be considered a scarce insect; upwards of one hundred specimens were taken by myself and two friends in five nights, from the 21st to 25th of September, at Carron, N. B.—*H. T. Stainton*; *Mountsfield*, *Lewisham*.

Difficulty of rearing Plusia Iota from the Larva.—Mr. Henry Doubleday informs me that it is impossible to rear this moth from the caterpillars, one of which he sent me, and having bred two specimens of *Tachina modesta* from it, I apprehend the failure is caused by this parasitic fly.—*J. Curtis*; *Hayes*, near *Uxbridge*, November 30th, 1847.

Description of Microsetia quinquella, a new species of Moth of the family Tineada.—Expansion of wings 2—2½ lines; anterior wings deep black, with the base and three spots silvery-white; one placed towards the posterior angle of the inner margin, another on the costa near the base, and a third somewhat central near the apex; cilia silvery; posterior wings and cilia dusky; head black. It bears some resemblance to *subbimaculella*. I found this beautiful and very distinct species in considerable plenty on the trunks of oaks in the heath-field at West Wickham, on the 30th



of June last.—*George Bedell*; 4, *Waterloo Place*, *Coburg Road*, Dec. 16th, 1847.

Correction respecting Margaritia margaritalis.—In the list of my captures which you kindly inserted in the last number of the 'Zoologist,' I stated that I had captured three specimens of *Margaritia margaritalis*; Mr. H. Doubleday has since had the goodness to examine one of these species, and he informs me that the species is *Margaritia cinetalis* and not the true *margaritalis*, which has a ferruginous tip to the wing. I

think it would be best to correct this error at once, to prevent any mistake arising hereafter.—*Philip H. Vaughan ; Redland, October 11th, 1847.*

Propagation of Case-bearers.—In March, 1846, Dr. A. Speyer received a number of the cases of *Talæporia lichenella*, (*Linn.*)* containing partly pupæ, partly larvæ. The moths came out in the latter half of April, and proved all females, as had been observed also on a former instance. Four individuals, whose development and oviposition had been particularly observed, were put in a box by themselves. The young caterpillars came out of the eggs in vast numbers early in June. They were fed at first with some bits of old wood and bark overgrown with lichens, which were moistened once a day; afterwards with dead *Lepidoptera*, which they devoured eagerly. In October, having arrived at their full growth, they ceased to feed, and remained quiet all the winter. About the beginning of March they began to move about again, and a few weeks after spun the web for their change. At the usual period, the end of April, the moths came out, and as before not a single male among them. Their eggs were laid as usual in the empty cases, and a month after the box was swarming with young caterpillars. Every precaution was taken throughout to ensure their total separation from any possible access of the other sex. It appears, therefore, that in this species at least there may be two successive generations of females independently. — *Journal of the Stettin Entomological Society for 1847, p. 18—21.*

Descriptions of several species of British Tortricidæ. By H. T. STAINTON, Esq.

Tortrix pillerana, Hu. Without going into the much disputed point of the identity of *viburnana* and *galiana* (I think them distinct), there can be no dispute that under this name in Mr. Bentley's cabinet (now in the possession of Mr. Shepherd) there exists a very distinct species from either. The palpi being about twice the length they are in *viburnana* or *galiana*; these specimens are all like *sorbiana* in colour and markings, but smaller in size. This insect was figured in Wood as *luteolana*, fig. 1677, but the palpi are not shown. Humphrey's figure, Nos. 13 and 14, Plate 79, shows neither palpi nor markings.

Ditula Hartmanniana, Linneus. This is the scriptana of Hubner; it occurs on the trunks of willow-trees at the beginning of August, and does not seem to be an uncommon insect, though generally considered so. *D. semifasciana*, Haworth, in like manner, I believe, frequents sallows.

Antithesia ochroleucana, Hubner. This species very much resembles *Betuletana*, but feeds on the rose, and is by no means an uncommon species. Why it should so long have been passed over in this country I am at a loss to discover, as it does not at all resemble any other rose-feeder. As this species has not before been described in this country, I add a short description of it. Expansion of the wings eight lines; anterior wings deep-brown black (some specimens with a bluish shade), varied more or less with ochre, which assumes in some specimens the appearance of an indistinct fascia, a little before the middle. The apex of the wing, from the middle of the costa to the anal angle, is ochre-coloured, with a row of black dots on the costa and a few clouds on

* *Psyche triquetrella*, *Treitschke*.

the disk; cilia fuscous. Posterior wings grayish-brown, with paler cilia: thorax black-brown, varied with ochre. This insect appears from the middle to the end of June.

Antithesia prælongana, Guenée. Expansion of the wings eight lines; anterior wings deep blue-black, with an indistinct white fascia a little before the middle, which has two black blotches on it, one soon after leaving the costa, the other contiguous to the inner margin (which gives the insect the appearance of having a square white spot on the costa, and a small white mark near the middle of the disk); apical portion of the wing white, from near the middle of the costa to near the anal angle, with numerous bluish-black clouds; cilia bluish-black. Posterior wings fuscous, with paler cilia. This is about the size of *corticana*, but the anterior wings are narrower; it is not a very uncommon species in the North of England and Scotland. I do not know what plant it frequents: it appears early in June.

Antithesia leucomelana, Guenée, *Weaverana*, Dale. Expansion of the wings seven lines; anterior wings blue-black to beyond the middle, with an interrupted ochreous fascia a little before the middle; beyond the dark portion of the wing is a very conspicuous black dot placed about the middle; apical portion of the wing ochreous, with fuscous clouds; cilia fuscous. Posterior wings fuscous, with paler cilia. A pretty and very distinct species: I have met with this in the Isle of Arran, and believe it frequents the mountain sallow.

Spilonota amœnana, Hubner. Expansion of the wings eight lines; anterior wings (in fine specimens) of a beautiful flesh colour, with the base dark fuscous to near the middle, and an indistinct curved cloudy fascia a little beyond the middle, on which near the inner margin is a conspicuous black blotch, forming with some black dots near the hinder margin an ocellus (as in *aquana*), on which at the apex is a bluish blotch; the costa with numerous short fuscous streaks or dots; cilia at the apex deep blue-black, changing to fuscous, and flesh colour towards the anal angle. Posterior wings gray. This insect has been taken at Sanderstead and Riddlesdown, and also on the coast by Mr. Allis, in Cumberland; by Mr. S. Stevens, at the Isle of Portland; and by Mr. Edleston, on the Cheshire coast.

Spilonota rusticana, Fabricius. To this species is referrible the *quadrana* of Stephens, being the Scotch variety of this insect, and always much darker than the generality of English specimens.

Spilonota trigeminana, Stephens. Apparently identical with *argyrana*, (*Stephens*). The latter name has been used for a species of *Pseudotomia*, so that it will be preferable to retain the name *trigeminana*.

Pseudotomia simpliciana, Haworth. Under this name we had collected together several species known and described on the continent; it is useless to attempt descriptions of them here, as neither by figure nor description could I render the differences between the species discernible. There are probably half a dozen, or more, species that we have been in the habit of calling *simpliciana*, but I only know the names of four, viz., *plumbagana*, *Treitsche*, and *senectana*, *ulicana*, and *caliginosana* of Guenée.

Pseudotomia coniferana, Ratzburgh. Expansion of the wings 5—6 lines. Head, thorax, and anterior wings deep glossy brown black; the costa with four short silvery white streaks, the first and second indistinctly geminated, the fourth very clearly so, the third quite simple; on the inner margin opposite the first streak on the costa is a small silvery-white crescent, within which is a short black streak; near the anal angle

is another short streak nearly meeting the second costal one, and between this streak and another very near the hinder margin is an ocellus with three black dots; cilia silvery. Posterior wings dark fuscous, with paler cilia. This insect appears in June and July, frequenting fir-trees. It appears not very uncommon in the North, and I have one specimen taken at West Wickham wood by Mrs. Stainton.

Pseudotomia dorsana, Fabricius (not Haworth, Stephens). Size and colour of coniferana; on the costa are four short simple streaks, and near the apex a fifth geminated; on the inner margin arises a streak at right angles to the margin and meets the first costal streak; near the anal angle is another streak which meets the second costal one; ocellus as in coniferana. The streaks on this insect give it the appearance of two incurved silvery fasciæ, one about the middle, the other a little beyond. Closely allied to the preceding; I believe it frequents the same localities, but I have never met with it.

Pseudotomia floricolana, Hubner. This is the notata of Westwood; of course the latter name sinks.

Steganoptycha immundana, Fischer. A species nearly allied to tetraquetrana, but the termination of the basal fascia is always more abrupt on the inner margin; the anterior wings are also narrower. The spot is situated as in tetraquetrana and angulana (which I believe are only one species) near the anal angle; in unipunctana the spot is near the apex.

Anchylopera Lyellana, Curtis, and *derasana*, Stephens, are one species. The true *derasana* of Hubner is *unculana* of Haworth.

Philalcea incarnana, Hubner. I have never seen a British specimen; it differs from *sociana* in the ground colour of the anterior wings being flesh-colour instead of white: perhaps some of your readers will be able to inform me if they have ever met with it. The *incarnana* of Stephens is a suffused variety of *sociana*. Westwood gives *incarnana*, *Hubner*, as a synonyme for *amænana*, *Hubner*, conceiving the two to be the sexes.

Philalcea acereana, Guenée. Closely allied to *sociana*, but differs from that species in having the outer margin of the basal fascia less irregular; also in having in the ocellus three or four black dots, which are totally wanting in *sociana*. It occurs in July and August, and was taken last summer in some plenty, by Mr. Bedell, near some poplar trees in the Albany Road.

Opadia funebrana, Treitschke. An obscure species, probably existing in many cabinets by mistake for *Cnephasia nubilana*, yet it has a distinct ocellus. Expansion of the wings 6—7 lines. Anterior wings dingy gray, with numerous darker markings, and a golden gloss in certain lights; near the hinder margin is a distinct ocellus, with four black dots, and on the costa, near the apex, is a short golden streak; cilia glossy golden brown: posterior wings fuscous, with paler cilia; head and thorax tawny brown. In June, 1845, I beat one specimen out of a small lilac, which I fortunately observed at the time was distinct, and secured: this specimen has been submitted to Guenée, and pronounced by him to be *funebrana*. This remained unique till this summer, when I found another in one of my duplicate boxes, which had been looked over by Messrs. Douglas, Bedell and Weir, none of them detecting this placed with two or three *nubilana*. I mention this circumstance to show how easily the insect may be overlooked.

Caropocapsa stelliferana, Curtis. I obtained a specimen of this insect from Scotland this summer; it seems more allied to the genus *Pseudotomia*.

Bactra furfurana, Haworth. This is the *fuscana* of Chant.

Sericoris Douglasana, Guenée; the *tenebrosana* of Douglas (see Zool. 1266). This latter name had been previously used, and was changed by Guenée. Not an uncommon species; frequents fir trees in June.

Orthotænia Turionana, Linneus (not Haworth, Stephens). This beautiful species seems very rare in this country. I only know of one specimen, which was taken by the Rev. W. Johnson, off a fir tree at Birch Wood, several years ago. The head and thorax are rufous; anterior wings silvery-gray, with numerous darker dashes; at the anal angle is a decided *buff tip*; posterior wings pale, with a darker margin: size of *Buoliana*.

Orthotænia Buoliana, W. V.; the *Turionana* of Haworth, Stephens, &c. The last silvery fascia is more incurved in this species than in *gemmana*, in which it is *nearly straight*: the posterior wings of *gemmana* are also darker.

Rhyacionia Hastiana, Linneus, figured in Wood as *areolana*, N. 1679. Wood's figure 1132 has nothing whatever to do with this insect, neither do I know what it is.

Eupæcilia dubitana, Hubner. In many cabinets confused with *angustana*, yet the head, thorax and base of the anterior wings are *deep black*. In fine specimens, the ground colour of the anterior wings is flesh-colour. The insect figured in Wood, N. 1138, is the *Cnephasia littoralis* of Curtis, as is also the *Orthotænia venustana* of Douglas (see Zool. 1266).

H. T. STANTON.

December, 1847.

Captures of *Lepidoptera* in 1847.—The following list of captures of small *Lepidoptera*, usually accounted rare or local, may serve to point out their localities and times of appearance.

At Charlton Sand-pit.

Argyrolepis margaritana. Among thistles, July 16.

Spilonota Fœnana. Flying at dusk, July 23.

Pseudotomia Artemisiana. Flying, July 23.

Amaurosetia miscella. On *Chenopodium*, by sweeping, August 3.

At Sanderstead Downs.

Spilonota nigricostana. In bushes, June 27.

Pseudotomia proximana. Flying along hedges, June 27.

Anchylopera unculana. Hedges, June 13.

Peronea umbrana. Blackthorn bushes, October 3.

Orthotænia caricana. Flying, May 13 and August 4.

Depressaria damella. Juniper bushes, July.

Depressaria propinquella and *purpurella*. Corn and hay stacks, October 3.

Cleodora falciformis. Flying, June 13.

Argyromyges rhamnifoliella. Flying, June 27.

Argyromyges Housella. Juniper bushes, July 5.

Lampronia margine-punctella. Flying, June 27.

About Mickleham.

Pseudotomia Saturnana. Flying, June 6.

Carpocapsa grossana. Beech trees, June 6.

- Sericoris bifasciana*. Scotch firs, July 7.
Peronea trigonana. Hedges, October 17.
Depressaria Alstræmeriana. Beat out of a wood-stack in Norbury Park, Nov. 4.
Anacampsis pinetella. Scotch firs, July 7.
Adela Latreillella. In grass, sweeping, June 6.
Lampronia atrella. Among herbage, June 6.

West Wickham Wood.

- Pseudotomia populana*. Sallows, August 22.
Steganoptycha immundana. Birch, August 22.
Anchylopera diminutana. Sallows, June 20.
Anchylopera uncana. Among heath, May 22.
Sericoris Douglasana, Guenée (*tenebrosana*, Douglas). Spruce firs, July 7.
Pæcilochroma occultana. Larches, July 7.
Cheimatophila castaneana. Among heath, April 12.
Depressaria umbellana. Furze bushes, September 26.
Depressaria liturella. August 8.
Anacampsis decorella and *Lyellella*. Beat out of the thatch of an old shed, September 26.
Theristis acinacidella. Beat out of the thatch of an old shed, August 22.
Argyromyges nivella. Birch trees, August 22.
Argyromyges semiaurella. Birch trees, September 19.
Batia flavifrontella. Fir trees, July 5.
Tinea ustella. In broom, June 20.
Telea subfasciella. Scotch firs, June 11.
Gracillaria cinerea. Beating bushes, September 26.

Dulwich Wood.

- Anchylopera obtusana*. Hedges, June 20.
Philalcea nævana. Hedges, June 11.
Anacampsis alternella. Hedges, June 20.
Talæporia cembrella. Pupa cases found on a fence in March, appeared April 9.
Batia Panzerella. Hedges, June 11.

Albany Road, Camberwell.

- Philalcea Acereana*. On a fence under poplar trees, July 15.

Downs near Stoat's Nest.

- Philalcea amænana*. Brambles, August 4.
Depressaria apicella. Junipers, August 4.
Argyrolepis rutilana. Junipers, August 4.

Three miles beyond Croydon, near the high road.

- Orthotania pinetana*. Spruce firs, July 11.
Aphelosetia triatomea. In grass, July 5.

Blackheath.

- Anacampsis diffinis*. Among furze bushes in a gravel-pit, May 30.

Peckham Rye.

- Lampronia melanella*. One on a fence, June 1.—*J. W. Douglas*; Peckham, December 22, 1847.

Curious Habit of a Dipterous Insect.—Whilst watching the many dipterous insects that visit the flowers of the golden-rod, I noticed a very curious act of piracy. A large fly (whose name I have not been able to ascertain), with enlarged thighs, well suited for leaping, would settle on the plant, and remain for some time on the lookout. Suddenly it would seize a smaller fly engaged in gathering honey, and detain it for a short space, without doing it any apparent injury. On watching more narrowly, I found that the predatory fly compelled its victim to disgorge its store of honey, and thus obtained a kind of food which it was either unable or unwilling to gather from the blossoms.—*J. W. Slater.*

Medeterus regalis.—I took several specimens of this rare fly on the 9th of August, towards evening, in Cockburnspath, Tower dean, Berwickshire. It frequents in companies the faces of the rocks by the side of the burn, especially those in the shade, which the rivulet bedews with its spray as it works forward its troublous passage. It is usually to be observed squatting, but when alarmed it gets up on its long crane-like legs, prepared to start off to a new retreat. A few mornings after, I noticed several others on the banks of the river Eye, in the same county.—*James Hardy; Penmanshiel, by Cockburnspath, Berwickshire, October 5, 1847.*

Aqueous Vapour expelled from Bee-hives.—"There is one circumstance connected with the economy of the bee-hive which does not appear to have engaged the attention of naturalists. It is the transpiration of vapour from the interior of the hive, at certain seasons, during the act of ventilation. Every bee-keeper must have noticed that at the latter part of the summer there is often a deposit of blackish carbonaceous matter on the footstool of straw hives, which is extended a few inches from the entrance-hole. This deposit is accumulated there in the course of a few months. When it first attracted my attention, I supposed that it was occasioned by the bees alighting at that spot, and accidentally shattering some of their loads of pollen; or that, perhaps, it might be rejected excrementitious matter; but I afterwards satisfied myself that it does not arise from either of these causes. The pollen conveyed by the bee is rarely or ever shattered in its transit, while the bees are always particularly careful to remove obnoxious materials from the interior of their dwelling or its immediate vicinity. Other circumstances have since led me to believe that it results from the accumulation of small quantities of wax that had adhered to the feet of the bees that have just left the combs and are passing outwards, and that its dark appearance may perhaps be due to the same cause as that which discolours the combs in the interior, and changes them, in the course of a few months, from a delicate yellow to a dark brown, and even to a blackish hue.

"When a hive is examined very early in the morning, at the end of summer, after a fine cool night, we usually observe at the entrance-hole a stream of moisture passing from it, sometimes in drops. This is more or less abundant at different periods, according to the temperature of the preceding day, the activity of the bees, and the coolness of the night. There seems reason to believe that this fluid results in part from the respiration of the bees, and the extraneous transpiration from their bodies, generated during the night in the form of vapour, which is condensed and deposited as it comes into contact with the cold night air during the ventilation of the hive. It has already been stated by Huber, that the vitiated air of the hive is removed by the fanning of the bees, and that by this process a double current of air is established. The respired air is removed by the one, while fresh air enters by the other. My own observations have fully satisfied me of the correctness of these statements, and I have

little doubt that it is to the contact of these two currents that the deposition of moisture at the entrance of the hive is due. In order to ascertain the quantity of fluid expelled from a hive in one night, I made an experiment, which, although not free from objections with reference to the hygrometric condition of the air during the night, satisfied me that the quantity is often very considerable. I cut off the bottom of a glass phial, and then ground the edges carefully, so as to fit accurately to the front of one of my wooden hives: the phial was then affixed to the entrance-hole, with its contracted neck left open, so that all the air which escaped from and entered the hive passed through it. By this means a part of the vapour that was expelled from the hive was condensed in the phial, and the experiment, to a certain extent, was successful. During eleven and a half hours of the night of the 1st and 2nd of September, from half-past six in the evening till six in the morning, there was condensed in the phial about a dram and a half of fluid, besides what had escaped from the open mouth of the phial in the form of vapour. The temperature of the vapour within the phial, as it issued from the entrance-hole of the hive, at half-past six o'clock in the morning, was 69° Fahr.; that of the external atmosphere was then only $59\cdot5^{\circ}$ Fahr. The temperature of the vapour within the phial was ascertained at a distance of four inches from the hive, the thermometer being held free within the neck, and not in contact. At eight o'clock on the following morning, when the temperature of the external atmosphere was 61° Fahr., the vapour in the phial was $71\cdot5^{\circ}$ Fahr., while a thermometer inserted through the tip of the hive, and which had remained untouched for several days, showed that the interior of the upper part of the hive was then only 69° Fahr. The bees at that time were perfectly quiet. Thus the expelled atmosphere of the phial, as on the preceding morning, was $10\cdot5^{\circ}$ Fahr. above that of the open atmosphere, and $2\cdot5^{\circ}$ above that of the top of the hive. At six o'clock of the evening of the same day, when the temperature was sinking, and was then only $53\cdot9^{\circ}$ Fahr., that of the vapour in the phial, taken as before, was only 59° . The hive had then become quiet for the night, and its temperature was reduced. The temperature of the expelled air was thus shown to depend much on the degree of activity or quiescence of the bees, and consequently on the greater or smaller amount of their respiration. The bees were now in a state of rest, and respired but little; while in the morning they were becoming active, and preparing to enter upon their labours. During this night the temperature of the atmosphere sunk down to 32° Fahr.; and when I again examined it in the morning, September 4th, at six o'clock, it had risen only to $41\cdot5^{\circ}$ Fahr. The hive was then quiet; the bees had been reposing all night, and were disposed to pass into their state of semi-hibernation. The temperature of the interior, at the top of the hive, was then only 54° Fahr., and that of the vapour in the phial, even at the entrance-hole of the hive, was but 59° Fahr.; and the quantity of vapour condensed within the phial scarcely amounted to so much as three minims. These concordant circumstances seem to prove that the vapour expelled from the hive results in chief part from the respiration of the bees, and the extraneous transpiration from their bodies; that this is most abundant when the bees are most active and are respiring freely, and when the greatest amount of heat is evolved by them. On the contrary, as the activity of the bees is diminished, the temperature of the hive becomes reduced and the quantity of air deteriorated, and the vapour expelled is lessened. And may we not also conclude from the fact, that the vapour, which thus seems to be the result of respiration by the bees, and which is condensed and deposited as it issues forth, holds in solution a superabundance of carbonaceous matter, which is deposited

within it, and occasions the discoloration of the combs and of the entrance to the hive?"—*George Newport, F.R.S., in 'Transactions of the Linnean Society.'*

Occurrence of Trigonaly Anglica in Derbyshire.—I have much pleasure in recording the capture of an exceedingly rare hymenopterous insect, *Trigonaly Anglica*, *Shuckard*. The first British specimen belonging to this genus was described by Mr. Shuckard, in his Monograph on the Aulacidæ (*Entomologist*, p. 123): that gentleman had at the time some doubts as to its having been captured in England, or at least he says, "it may or may not have been imported with plants from America." My specimen was taken by Mr. H. W. Bates, in a wood called Repton Shrubs, Derbyshire, about the end of June; so this clears up the doubt, I think, as regards Mr. Shuckard's insect. The genus *Trigonaly* was characterized by Mr. Westwood, in the *Proc. Zool. Soc.*, 1825, and founded upon an insect from Brazil. Mr. Westwood says that it has the neuration of *Myrmosa*. Our species differs somewhat from the type, *T. melanoleuca*, in this respect. A second species is described by Spinola, in *Guerin's Mag. de Zool.*, 1840, under the generic name of *Seminota*, the species being *Leprieurii*, but he afterwards adopted the generic name of *Trigonaly*: this species was from Cayenne. In the same work, in 1840, the Marquis de Spinola described a third species, *Trigonaly Hahnii*, which is quite distinct from the British species. *T. Hahnii* has been captured in France. Four species of this genus are therefore known and described. The situation of this genus has been variously assigned by different authors, Mr. Shuckard and Mr. Westwood placing it in the *Evaniadæ*; Spinola placed it provisionally near the *Braconides*; St. Fargeau placed it between *Stigmus* and *Pemphredon*, and *Guerin-Meneville* thinks it should follow *Mutilla*; but I think the reasoning of Shuckard, and the characters pointed out by him, are conclusive that it ought to be placed near the *Evaniadæ*. The following description and figure may serve to point it out to entomologists should it chance to fall in their way. Entirely of a deep black, brilliantly glossy on the head and abdomen. Antennæ inserted on the external side of a couple of small flat facial processes. Thorax densely punctulate, making it subopaque; metathorax rugose, with a central longitudinal carina, and two lateral, curving and divergent. Wings hyaline, with a dark cloud covering the basal half of the marginal cell, and the apical half of the first, and the entire second and third submarginal cells. Antennæ consisting of twenty-five joints.—*Frederick Smith; 5, High Street, Newington, December, 1847.*



Trigonaly Anglica.

and the apical half of the first, and the entire second and third submarginal cells. Antennæ consisting of twenty-five joints.—*Frederick Smith; 5, High Street, Newington, December, 1847.*

Habits of Mutilla Europæa.—*Christius*, in his *Natural History of Insects*, p. 144, has stated that this species lives in company with humble-bees, the larvæ of the two being commingled in the cells; and he breaks out into expressions of wonder at this seemingly amicable association. Later authors have either overlooked this account, or they did not give it credit; for neither *Latreille*, *Lepelletier*, *St. Fargeau*, nor *Westwood*, have anything positive to state as to the economy of the *Mutillæ*. *Drew-*

tomologists should it chance to fall in their way. Entirely of a deep black, brilliantly glossy on the head and abdomen. Antennæ inserted on the external side of a couple of small flat facial processes. Thorax densely punctulate, making it subopaque; metathorax rugose, with a central longitudinal carina, and two lateral, curving and divergent. Wings hyaline, with a dark cloud covering the basal half of the marginal cell,

sen has recently verified the statement of the old author, and observed the circumstances of this association more particularly. From a nest of *Bombus Scrimshiranus*, which he had brought into the house that he might make his observations on the bees more easily, he obtained but two bees (both workers), while as many as seventy-six of the *Mutillæ*, forty-four males and thirty-two females, came out of it. Their grubs were found alone in cells closed with the usual web, and as the grub of the bee only can produce this, it appears that the *Mutilla* is carnivorous, devouring not the provision laid up, but the full-grown grub of the bee. The female *Mutillæ* pass the winter torpid and rolled up in burrows under ground, while the males die off immediately after pairing.—*Journal of Ent. Soc. of Stettin*, 1847, p. 210.

List of Insects produced from Oak-Apples (continued from Zool. 1457).—

December, 1846, and January, 1847.

Callimone nigricornis, 3 or 4.

Eulophus gallarum, 3 or 4.

February.

Eulophus gallarum, 7, 1 male and 6 females.

March.

Callimome nigricornis, 31, 30 males and 1 female.

Eulophus gallarum, 37, 20 males and 17 females.

Do. 14 males and females.

April.

Callimome nigricornis, 563, 378 males and 185 females.

Eulophus gallarum, 1661 males and females.

May.

Callimome nigricornis, 153, 13 males and 140 females.

Callimome æqualis, 1 female.

Callimome tarsalis, 2 females.

Callimome flavipes, 1 female.

Callimome chlorinus, 1 female.

Pteromalus Naubolus, 9, 5 males and 4 females.

Pteromalus ovatus, 1 female.

Do. 2.

Eupelmus urozonus, 41, 19 males and 22 females.

Eulophus gallarum, 3.

Bracon ———, 27, 19 males and 8 females.—*Francis Walker*.

Capture of Pytho depressus, Cetonia ænea, &c., in Scotland, and of Rare Insects elsewhere.—Although the addition of a new species to our Fauna, amongst the Vertebrata, is an event of sufficient importance to record in the pages of the 'Zoologist,' I doubt whether such be the case in regard to the countless numbers amongst the Invertebrata; nevertheless exceptions, as in the present instance, may occur. As examples of the extent of unrecorded indigenous insects, I shall mention two, viz.—in two limited groups of Diptera—the Sarcophagiens, and a portion of the Muscies of Macquart, forty-seven species only are recorded, whereas, ten years since, when I rearranged that portion of my collection, I possessed eighty-three described ones, thereby adding thirty-six, which, with additions, remain to this moment unrecorded; while the insects themselves are generally of large size, *Musca domestica* being about the smallest, and most of them are found, moreover, within or about the metropolis. Again, in the two sheets already published of the admirable 'List of British Lepidop-

tera, by my friend H. Doubleday, there are no less than eleven conspicuous insects registered for the first time: in fact, I believe there are at least 1000 indigenous species of insects, whose names have not yet found their way into our published lists, the insertion of which would probably occupy too much of your valuable space: I will therefore only notice a decade of the more remarkable recent discoveries, including that which induced me to pen this note, viz.

Pytho depressus, Perthshire, on firs, in July.

Cetonia ænea, do.

Tetratoma Desmarestii, Henhault Forest.

Abraeus vulneratus, Windsor.

Quedius fontalis, about London, in plenty.

Locusta subcærulipennis, Southampton.

Libellula meridionalis, in my own garden.

Nematis Erichsonii, fir trees, Guildford, in August.

Strongylogaster eborina, hedges, Coombe Wood.

Rhamphomyia spinipes, Dumfriesshire.

Of the first insect I possess a pair, a blue male and a green female; it is one of our most conspicuous Coleoptera: four specimens were taken by Mr. Weaver during his recent excursion in Scotland, from whom my pair were obtained, as also *Cordulia arctica*, ♂ and ♀, *Hadena assimilis*, *Doub.*, ♂, *Amphisa Walkeri*, *Coccyx Cosmophorana*, ♂ and ♀, a new *Ctenophera*, &c.—*J. F. Stephens; Eltham Cottage, Foxley Road, North Brixton, November, 1847.*

Coleoptera on the Coast of East Lothian.—During a visit to the coast east of Dunbar, on the 16th of August, I took a few insects, which, as coming from an unexplored district, may be worthy of being placed on record. The coast consists almost entirely of a succession of barren links, and anything worthy of notice was separated by wide intervals, and difficult to procure. In a red sandstone quarry near the town, *Amara (Bradytus) ferruginea* occurred, but only a single specimen. *Aleochara nitida* was abundant; and *A. obscurella*, with *Omalium læviusculum* (*O. læve, Stephens*), were met, wherever there was decaying sea-weed to shelter them. *Xantholinus glabratus* was rather common, in decayed horse and cow-dung, as Mr. Holme (*Ent. Trans.* iii. 125) remarks it is on the coast of Cornwall; though in this vicinity, it is frequently found at some distance from the sea. *Staphylinus maxillosus* lurked in great profusion under the sea-weed, and accompanying it were two specimens of the rare variety? *Staphylinus ciliaris, Leach*, which I had also found in Berwickshire, frequenting dead birds and remains of the smaller quadrupeds. In the same situation, *Philonthus sordidus*, *P. aterrimus* (*Gabrieus id. Stephens*), and *Othius læviusculus, Kirby* (*O. punctipennis, Lacordaire*) were found. *Quedius frontalis, Nordm.* (*Q. tristis, Angl.*) and *Ocypus picipennis* (*Staph. æneocephalus*) frequented dry places under stones, in company with the customary tenants of the shore, *Ocypus olens* and *O. Morio* (*O. similis, Stephens*). Wherever *Cakile maritima* grew, *Macrocnema marcida* was its faithful attendant; and the forests of golden ragwort gave sustenance to a profusion of the pale-coloured variety of *Thyamis tabida*. *Brosicus cephalotes* dwells along the whole coast, coming about four o'clock in the afternoon. Dead squadrons of *Serica brunnea* were scattered over the sands, its season having gone by. *Otiorhynchus scabrosus* appeared near Dunbar, and *O. atroapterus*, with *Philopedon geminatus*, were feeding on the scanty patches of *Ammophila arundinacea*, which they relish beyond all other fare. By far the most interesting insect was *Aepus fulvescens*, which I found

near the Vault shore, in its usual maritime situation, under a black bituminous shale, daily covered by the tide. It was very scarce, and was accompanied by a blue, broad, wrinkled Podurellide, destitute of the anal leaping fork. *Microlymma brevipennis*, its other customary companion, was not present. Altogether I found eighty-eight species of Coleoptera, nearly all of the commonest sorts.—*James Hardy; Penmanshiel, Cockburnspath, Berwickshire, October 5, 1847.*

Remarks on Local Species of Coleoptera in the Neighbourhood of Burton-on-Trent.—Having paid some attention during the past summer to the collecting of Coleoptera in this neighbourhood, whose productions in this order of insects had not before been investigated, I have drawn up a short list of such local British species found as may prove interesting to the entomological readers of the 'Zoologist.' The species enumerated, of course, form but a small portion of the productions of the locality, the bulk of which are generally common in most of the English counties, and are noted chiefly as being of unusual or unexpected occurrence in the Midland district.

Epaphius Secalis. On the banks of the Trent and Dove, coursing about at the roots of herbage.

Ocys melanocephalus. In old willow-stumps, banks of the Dove.

Peryphus femoratus. Under pebbles on the gravelly margins of the river Dove, in abundance. This species is generally rare in the Midland counties.

Peryphus albipes. In old willow-stumps and under sediment on the banks of the Dove: altogether six specimens have occurred.

Peryphus viridiæneus. On sloping shingly banks of the Dove, in profusion.

Peryphus atrocæruleus. In equal abundance with the preceding, in the same situations.

Tachypus striatus. Also on shingly banks of the Dove, but more sparingly than the two preceding species.

Haliphus flavicollis, Au., *ferrugineus*, Ste. In ponds; two specimens.

Hydroporus assimilis, Pk., *frater*, Ste. In ponds; one specimen.

Ilybius fenestratus, *obscurus* and *ater*. In ponds. These three species are apparently generally common in the Midland counties.

Octhebius exsculptus, Müller (Muls. Palpicornes), *viridiæneus*, Curtis. One specimen; banks of Trent.

Helophorus rugosus, Oliv. (Muls. Palpicornes). Banks of the Dove; one specimen. I am not sure whether the Fennicus of Stephens is the same species as the present one, the sculpture of the thorax not at all agreeing with the description given in the Manual.

Berosus luridus. In ponds; one specimen.

Scaphiosoma agaricinum. In Boleti, on old willow-stumps.

Silpha quadripunctata. Several specimens on oaks, and by sweeping at Repton Shrubs, June. This is usually a scarce insect in the Midland counties.

Campta lutea. On umbelliferous flowers; not generally uncommon in the neighbourhood of woods in the Midland counties.

Atomaria mesomelas and others. On old willow-stumps covered with Boleti.

Megatoma undata. On palings near woods; several specimens.

Onthophagus ovatus. Ten specimens, in sheep-dung on a hilly pasture. This is the only instance of the occurrence of this very common South-of-England species in the Midland counties. The only other Onthophagi found within the Midland district, that I am aware of, are *cænobita* and *nuchicornis*; the former very local in dry

pastures, the latter scarce everywhere. The scarcity of insects of this genus, and of several other genera (*Harpalus*, *Dromius*, &c.), is doubtless attributable to the clayey nature of the soil along the plains of red sandstone and lias in central England.

Aphodius fætens. In abundance, on dry pastures.

Aphodius scybalarius. On dry pastures, scarce.

Aphodius sticticus. Horse-dung in woods; four specimens, in August. Found, according to Mulsant (Col. de France, Lamellicornes), exclusively in woods in France.

Aphodius depressus. On hilly pastures; three or four specimens have occurred in July.

The other species of *Aphodius* more or less common in this neighbourhood are,—*erraticus*, *subterraneus*, *hæmorrhoidalis*, *fossor*, *fimetarius*, *ater*, *De Geer* (*terrestris* and others, *Ste.*), *pusillus*, *Herbst*? *sordidus*, *Fab.* (the *var. rufescens*, *F.* only), *merdarius*, *rufipes*, *luridus* (with the *var. nigripes*, *F.*), *prodromus* and *contaminatus*.

Serica brunnea. In profusion, one evening after sun-set, in July, at Repton Shrubs.

Agrilus viridis. In woods, by sweeping, from July to October.

Telephorus clypeatus. Common on whitethorn blossoms, &c., in May and June.

Telephorus ochropus. Abundant amongst herbage in a moist wood; also in marshy meadows.

Malachius ruficollis. Hedge-banks, very local, July.

Aplocnemus impressus. One specimen, by sweeping, Repton Shrubs.

Xyletinus pectinatus. Two specimens, on palings.

Gymnaëtron nigrum, Germ. One specimen on a hedge-bank near Repton. This species occurs very sparingly in the Midland counties. I have taken three other specimens on hedge-banks near woods in Leicestershire.

Orobitis cyaneus. Two specimens, by sweeping, in woods.

Phytobius leucogaster. On cruciferous plants; one specimen.

Rhinonchus tibialis. On docks in meadows, rather common, May to September.

Orchestes pubescens. On hazel and other trees, sparingly.

Notaris Æthiops. In a marshy meadow; one specimen.

Dorytomus tortrix. In great profusion with another species, on the aspen, in May.

Dorytomus pectoralis, Abundant, also in company with another species (name unascertained), on sallows, in May.

Ellescus bipunctatus. One specimen, on aspen.

Omyia Bohemani. This newly-described species I found in May, on a sloping mossy bank, by the Trent. It occurred sparingly throughout the month: altogether I took from twenty-five to thirty specimens.

Cneorhinus exaratus. Sparingly on hilly pastures, by sweeping.

Sitona cambrica. In woods, September; three specimens.

Polydrosus micans. Very abundant on the hazel, in woods, July.

Magdalis carbonarius, L. Two specimens, evidently of the true *carbonarius* of Linneus, as distinguished by Mr. Walton in the 'Annals;' on the birch in May.

Rhynchites pubescens. Three specimens, by sweeping, Repton Shrubs.

Rhynchites ophthalmicus. Sparingly on the birch, in woods, July and August.

Rhynchites æneovirens. Sparingly in woods, by sweeping.

Saperda populnea. On the aspen, in woods, sparingly, June and July.

Saperda ferrea. On the hazel, one specimen, Repton Shrubs, July.

Tetrops præusta. On whitethorn blossoms; two specimens. Very scarce throughout the Midland counties.

Galeruca Viburni. On the *Viburnum Opulus*, in great abundance, September.

Chrysomela varians. Sparingly in woods, by sweeping, from May to October.

Chrysomela fulgida. In profusion, Bretby Park, July. The only locality for the insect that I am aware of in Leicestershire and Derbyshire.

Chrysomela lamina. Meadows, banks of Trent; chiefly found during floods, about Midsummer.

Chrysomela geminata. Three small copper-coloured specimens, in woods, October.

Chrysomela pallida. This species, hitherto generally found in the North and in Scotland, was taken by Mr. Edwin Brown (the captor of many other species in this list), on the hazel, in great abundance, July and August.

Chrysomela rufipes. On young shoots of aspen, in woods, July, abundant.

Abdera quadrifasciata. One specimen, by sweeping, Repton Shrubs, July.

Pselaphus Heisii. Amongst sediment, banks of the Dove.

Tychus niger. Same situation as the preceding. This species appears to be the most generally common of the *Pselaphidæ* in the Midland district.

Bryaxis hamatica. Two specimens, in company with the above.

Besides the species, enumerated in the preceding list, there are several we are obliged to omit, from the difficulty of ascertaining their correct names. The vicinity of Burton, like the greater part of the Midland district (including the South of Staffordshire, Derbyshire and Nottinghamshire, all Leicestershire and the South and East of Warwickshire), possesses a stiff marly soil, which, although favourable to a rich meadow vegetation, yields but a limited number of species of insects. Our best grounds are the rich meadows and flowery banks that accompany the course of the Trent, and the oak and hazel woods in the neighbourhood of the river. The banks of the Dove, near its junction with the Trent, yield many peculiar species, from the soil being of a lighter character, chiefly alluvial sand and gravel. The names used above are those of Stephens' Manual, except when otherwise indicated.—*H. W. Bates; Burton-on-Trent, November 9, 1847.*

Capture of Buprestis mauritanica in Plaistow Marshes.—I have a beautiful species of *Buprestis* captured on an oak post in Plaistow marshes on September 9th: it was taken alive to the British Museum for the purpose of getting it named. It proves to be the *Ancylocheira Mauritanica*, *Lucas* (*Voy. d'Algérie*). When taken the elytra were quite soft, showing that it was bred near the spot where it was captured.—*F. Bond.*

On the Geographical Distribution of the Cetoniadæ.—There are in Africa 71 genera of this family, of which 54 are peculiar; in Madagascar 23, peculiar 21; Asia 41, peculiar 22; Australia 8, peculiar 4; America 22, peculiar 17; Europe 9, peculiar none. Thus Africa seems to be the metropolis of the *Cetoniadæ*, especially if we were to include Madagascar. The most widely-spread genus is *Valgus*, which is found in all these districts except Madagascar. The number of African species is 220; Madagascar 62; Asiatic 181; Australian 26; American 152; European 31.—*J. W. Slater.*

Note on Aphodius contaminatus.—The species of *Aphodii* observe succession in the period of their appearance, and while *A. inquinatus* is somewhat of the earliest, *A. contaminatus* completes the cycle, being sometimes found to brave the frosts of January. The immense profusion of this species in the autumn has been alluded to by Kirby and Spence, in their 'Introduction to Entomology.' In the sunshine succeeding

to warm showers, they fill the air, like bees at swarming time. Besides being the food of several species of Philonthi, they are eagerly sought after by birds of various kinds. A short time since, the missel thrush and the rook might be seen consorting to participate in the profuse supply; and the sea-gull will sometimes spend an entire day in the pursuit amid the cattle pastures. In the month of August, large flocks of the lapwing, in company with another sandy-coloured whimpering bird, frequented the East Lothian coast, where this insect appeared to be the principal attraction; now they have recourse to the uplands, where it is still prevalent. The plovers have recently joined them, but I have not made any observation as to what *they* feed upon.—*James Hardy; Penmanshiel, Cockburnspath, Berwickshire, October 5, 1847.*

Occurrence of Sphærites glabratus in Scotland.—It may be interesting to British entomologists to know that *Sphærites glabratus* has again occurred as a Scottish insect. I took a single specimen among decaying herbage, in a shady glen in Penmanshiel Wood, about two weeks since. It has the habits of a Hister, which it much resembles.—*Id.*

Habits of Blemus pallidus.—This insect, which resembles *Aëpus* in its shelly, flattened body, appears to be of somewhat similar habits. I took some specimens under shingle laid under water by a small rill, on a wild, rocky beach, on the Berwickshire coast. *Anchomenus albipes* and *Peryphus saxatilis* were its accompaniments, and with *Quedius umbrinus*, *Lathrobium longulum*, and the variety of *Quedius fulgidus* with red elytra, were almost the only coleopterous tenants of the barren spot.—*Id.*

Unusual Habitat for Pristonychus Terricola.—Of this insect, usually abounding in cellars, I found an individual under a stone, on a sandy part of the coast near Cockburnspath, more than a mile from any dwelling, and with little apparent means of intermediate communication. Near it also was found *Quedius fulgidus*, the black variety, also a native of cellars; and a species of *Bledius* new to the Scottish Fauna, which, although common on many of the British shores, does not yet appear to have been at least correctly described.—*Id.*

Insectivorous Propensity of Notoxus Monoceros.—Collectors soon learn, by sad experience, the ill effects of placing the larger *Geodephaga*, *Brachelytra*, &c., along with other species, their unhappy taste for dissection proving extremely detrimental to their *bottle companions*; but as some may not be aware that the little *Notoxus Monoceros* has similar evil propensities, I record the following incident as a salutary caution. While collecting at Ryde last summer, I put some *Notoxi* along with several *Ischnomera lurida* and other species in my bottle. On my return, I observed a *Notoxus* very busy about one of the *Ischnomeræ*, and, on closer examination, discovered that he was engaged in nibbling away the last-named insect's elytra: that it was not the freak of an individual appeared from his being shortly joined by three others, who immediately rendered all the assistance in their power, the *Ischnomera* standing perfectly still the while, as if the sensation was rather pleasing than otherwise. I have kept the specimen, in which both the elytra are eaten away nearly to the shoulder.—*George Guyon; Ventnor, Isle of Wight, November 9, 1847.*

Occurrence of the Locust near Hull.—Having seen your notice in the 'Zoologist' (Zool. 1900), requesting information concerning the occurrence of the locust, I beg to inform you of three, two of which were captured last year on the banks of the Humber, at Hessele, near Hull, and the other was taken this year at Kingerby, Lincolnshire.—*E. Peacock; Messingham, Lincolnshire, November, 1847.*

Occurrence of the Locust in Cambridgeshire.—As you wish to know of the occur-

rence of the locust, I beg to say I have another fine female specimen, captured at Duxford, Cambridgeshire, September 10th, 1847.—*Fredk. Bond ; Kingsbury, October 6, 1847.*

Occurrence of the Locust near Thorne.—I have just received three fine specimens of the locust, captured on the levels near Thorne, on the 3rd of September, by some harvesters, while passing a field of wheat: one of them was taken on the wing.—*Joseph Richardson ; Bank, Thorne.*

Occurrence of the Locust near Hertford.—A specimen of *Gryllus migratorius* was brought to me on the 16th of 8th mo., 1847. It was taken on some cabbages in a cottage garden near Hertford.—*E. Manser ; Hertford, 15th of 10th mo., 1847.*

Occurrence of the Locust near Wisbeach.—I possess a specimen of this rare insect, which was captured alive, three weeks since, in a potato field not far from this locality. I have also heard of several others having been found in the neighbourhood.—*Robert Marris ; Lynn Road, Wisbeach, October 11, 1847.*

Occurrence of the Locust in Lincolnshire.—Two instances have come within my knowledge where the locust has occurred, that is, Stamford and Millthorpe in Lincolnshire, but in both cases the wings were very much split and worn.—*Wm. Turner ; Uppingham, October 13, 1847.*

Occurrence of the Locust at Whitley, and near Newcastle-on-Tyne.—My brother caught a locust on the sea-banks near Whitley, on the 27th of September: another specimen was taken in the vicinity of Newcastle a day or two previous. The specimen caught on the 24th of August (Zool. 1900) continues alive and active, feeding freely on lettuce.—*J. J. Bold ; Newcastle-on-Tyne, October 5, 1847.*

Occurrence of the Locust in Derbyshire.—I feel happy to be able to add another locality to your list of places where locusts have this year occurred, and which may be more inland than usual. A fine and perfect specimen of this locust was taken on or about the 12th instant, upon Elton Moor, in this county. It is now in my cabinet.—*Thomas Bateman ; Yolgrave, October 23, 1847.*

Occurrence of the Locust in Cornwall.—The more common, or devastating locust (*Gryllus migratorius*) has been known from the earliest periods in the countries of Western Asia, and the parts of Europe that border on that division of the world. It is also abundant on the African borders of the Mediterranean Sea; from whence, rather than from its more eastern haunts, it is known at uncertain periods to cross into Italy and Spain; and the former country in particular has sometimes been subjected to its desolating ravages, to as great an extent as the countries of Asia, and with even more formidable results. But the advance of this insect into the cooler regions of France and England is a rarer occurrence; and it is even more so than has been supposed, for it is beyond a doubt that a species of dragon-fly, probably *Libellula depressa*, has been mistaken for it; and this error is the more likely to be committed from the degree of resemblance which they may bear to each other when on the wing,—at least in the estimation of those who are not closely acquainted with either of those creatures; and as this dragon-fly in its ordinary habits is solitary, its casual assembling in such immense multitudes may easily lead to this mistake. But notwithstanding the rarity of the occurrence, it is on record that the true locust has been sometimes seen to visit the British Islands. In the year 874, after devastating France, they attempted to cross the British Channel; and such multitudes were drowned and thrown on the shore, that their putrefaction was supposed to have been the cause of a pestilence that soon after followed; (Ruysch's 'Theatrum Animalium'). But the Channel

has not always proved an impassable barrier ; and in the year 1593 clouds of locusts were seen in Wales. In the eighteenth volume of the 'Philosophical Transactions' there is also an account of their again visiting this country, in the year 1748. This is the last visitation of which I have been able to find a notice, and the instances, or at least the observers, have in each case been confined to the midland parts of our island, exclusive of the extreme north or west. It becomes therefore a matter of interest to the natives of Cornwall to learn, that in the present year (1846), the locust has not only visited and been diffused over England, but that it has also been found as far north as Scotland, and westward in our own native county. For the knowledge of their presence in Scotland I am indebted to the authority of the newspapers ; which also announced in the first instance their flight into England across the narrowest parts of the Channel. But that it has been a visitant to Cornwall, I have the evidence of a specimen which, early in the month of September, flew into a house in East Looe, and which was captured alive after it had given its pursuers some remarkable instances of its agility. This specimen is in the possession of Mr. Clement Jackson, who has carefully and skilfully preserved it ; and to his kindness I owe the opportunity of obtaining a coloured drawing, and of satisfying myself of its certainly being the true *Gryllus migratorius*. It appears from a variety of evidence, that some specimens of this insect were also taken within a short distance of the Land's End. It may be a subject of some interest to inquire what can have been the cause by which, at such considerable intervals of time, these creatures of a distant and warmer climate have been drawn to visit this extremity of Britain. And in the first place the remark is obvious, that it is not from the influence of boisterous winds, which have irresistibly wafted them away from their native haunts. On the contrary, the past summer has for the most part been calm, and for two or three months previous to their visit remarkably so. But with the general tendency to calm there has been also a condition of climate and temperature which was not indeed exceedingly hot, but which yet conveyed an impression of genial warmth, greatly resembling what is described as usual at their active periods in their native regions, and which therefore may be supposed to be that which is most consistent with their settled habits. It seems to be a repugnancy to certain conditions of the atmosphere,—among which perhaps humidity and a tendency to chill are the most influential,—that proves a more effectual hindrance to wandering, in a variety of creatures, than any geographical limits of mountain or ocean ; and when for a time, as during the last summer, the atmospheric state of a region has received the impress of a new condition, it is not surprising that creatures, hitherto repelled, should acquire a disposition to extend their range of flight to our shores.—*Jonathan Couch ; Polperro.*

Occurrence of the Locust at Battel.—On the 13th of September a man brought me a locust alive. He caught two, but one escaped before he could secure it properly.—*J. B. Ellman ; Battel, October 4, 1847.*

Occurrence of the Locust in London.—This evening (October 12th) a small specimen of *Locusta migratoria* was brought to me, taken a few days previously at the back of the London Hospital.—*J. Fremlyn Streetfeild ; Chart's Edge, Westerham, Kent.*

Generation of Aphides.—"The history of the plant-louse, as ascertained by Léeuwenhoek, Bonnet, Reaumur, and others, is so generally known to naturalists, that it is almost an act of supererogation for any one merely to repeat the observations of those authorities ; and we cannot expect to add much to the very ample details they have given : yet the facts they have recorded respecting the generation of Aphides are in

themselves so exceedingly curious, and at the same time are so unexplained by any hitherto received theory of generation deduced from observations on vertebrated animals, that I have been desirous of verifying these facts by direct experiment, preparatory to attempting hereafter to show their accordance with some universal law of reproduction. I trust, therefore, that I may now be permitted in this short note to bear testimony to the correctness of the observations of Leeuwenhoek, Bonnet and Reaumur, on the mode of generation in the Aphides, although at present I can add but little to what has already been observed by those naturalists. The facts I have more particularly endeavoured to investigate, are—first, whether the Aphis is in reality viviparous at one season, and oviparous at another? and next, whether the supposed ova are deposited as true eggs; or whether, as imagined by some observers, they are only capsules designed to protect the already formed embryos during the winter season? With these objects in view, I selected the Aphis of the rose, as best fitted for the enquiry. In the beginning of November, 1842, the young shoots of a rose tree, that had remained in the open air during the whole of the preceding summer, were thickly covered with Aphides, amongst which I had not yet seen any winged specimens; neither had any of the females yet deposited ova. The rose tree was placed in the window of an apartment in which there was no fire, and where the temperature ranged from about 45° Fahr. to 50° Fahr. In the second week of November, as the temperature of the season became cooler, I first noticed several specimens with rudiments of wings, and a few days afterwards these cast their skins and became fully developed. Most of these individuals were males. At this time there were also a great many very young specimens. On the 30th of November the number of winged individuals had greatly increased; there were many with only the rudiments of wings: and there was also a great abundance of black oval eggs distributed everywhere on the young shoots of the plant, not only on the leaf-buds, but on the stems of the leaves and branches. I saw an Aphis at that moment bearing two eggs at the extremity of her body. On placing one of these beneath the microscope, I was quickly assured of its real nature: it was not a capsule that included a ready-formed embryo, but a true egg. When first deposited the egg is of an orange-yellow colour, but it soon acquires a much darker hue, and ultimately becomes of a deep shining black. The colour is entirely dependant on the pigment of the shell, and is much darker in some specimens than in others. The eggs are firmly glued to the plant, and are not easily removed. The egg of the Aphis is similar to that of other insects; it is composed of an orange-coloured yelk, formed of yellow nucleated cells, and surrounded by a very slight quantity of transparent vitelline fluid. It contains also a very large *germinal vesicle*, with a distinct *macula* or *nucleus*. This vesicle is three or four times as large as the cells that compose the yelk, and, unlike that of most other impregnated eggs of insects, does not disappear until some time after the egg is deposited. The vesicle is so persistent, that in one instance in which I examined an egg, shortly after it came from the body of the Aphis, it did not disappear for several seconds after the egg was crushed under the microscope.

“Wishing to observe the deposition of more eggs, I selected four specimens of the Aphis for experiment: two of these were males, which as yet were in the pupa state, and had only the rudiments of wings; the other two were large apterous females: these were placed on a detached branch of the rose, inclosed in a stoppered glass vessel, and removed to an apartment, in which the temperature ranged from 55° Fahr. to about 60° Fahr. On the 2nd of December, when the temperature of the room was

58° Fabr., I was surprised to find that these specimens were again producing living young. One of the large apterous females had already produced its living offspring, and the other was at that very moment in the act of parturition. The posterior part of the body of a young Aphis was then protruding from that of the parent, and was quickly followed by the remainder of the body, the thorax and the legs. When these parts had passed, there was a slight cessation of parturient action, the head being still retained in the vaginal passage. The disengagement of the head seemed to be the slowest part of the process. The manner in which the parent rid herself of the newborn Aphis was deserving of notice. When the little insect was almost entirely extruded from her body, it clung with its feet to the plant; while the female Aphis, at short intervals, gradually elevated her body, and with a slight jerk seemed to labour to remove it. The young Aphis repeatedly missed its hold, but quickly regained it, and was thus as it were partially dragged forth. The head, with its small black eyes, parts of the mouth, and the antennæ, were thus gradually withdrawn, but I could not detect any foetal coverings removed with them. The whole process of birth occupied about five minutes. Immediately after the young had escaped from the parent, it turned about on the leaf and moved very slowly, while the female plunged her proboscis into the plant to take food after her exertion.

“These brief observations confirm the statements of former naturalists, that the Aphides deposit at one period true ova, and at others produce living young; and they lead us hereafter to inquire more particularly respecting the circumstances which accelerate the one, or retard the other form of development.”—*George Newport, F.R.S., in ‘Transactions of the Linnean Society.’*

Habits of Noctilio Mastivus, a West-Indian Bat.—“The following notes are extracted from a journal kept in Jamaica during a residence there in the years 1845 and 1846:—

“Being out on a shooting excursion, on the 18th of October, 1845, round Crabpond Point, on the southern coast, about the middle of the day I looked about for a seat, on which to rest while I ate some refreshment. A gigantic cotton tree (*Eriodendron anfractuosum*) in the grass-piece of Mount Edgecumbe seemed to promise in its long root-spurs the seat I was seeking. On arriving at it I found the tree was hollow, the trunk forming a wide chimney of unknown height, as, being closed at the top, the darkness prevented my seeing more than a few yards up. I remarked to my servant that it was a likely locality for bats; but the appearance of a large gecko drew off my attention, and I attempted to capture it. The reptile darted however within the cavity, and I then noticed that beneath the hollow was piled a heap, several feet in diameter, and at least a foot in height, of a soft granular substance, which on examination I found to be the dung of some insectivorous animals, with a very rank peculiar odour. I had now no doubt of the tree being the abode of bats, but had little expectation of being able to ascertain the fact. While peering carefully up, however, I distinctly heard the flapping of wings and some shrill squeakings, and this determined me to fire my fowling-piece at random up the cavity. This I did twice, and though I brought down nothing but a little rotten wood, yet presently, when the smoke had a little subsided, on looking up again I discerned amidst the darkness one or two heads,

which seemed those of rats, and immediately another just above them, evidently crawling downwards. I pointed them out to my negro lad, who saw two or three more, and presently, as it became more clear of smoke, the whole sides of the cavity appeared full of curious round faces. I now fired, no longer at random, and had the pleasure of bringing down this beautiful bat, which fell dead. The smoke of this discharge made the others more anxious to come down to the fresh air, and we could see them descending fast, head downwards. As the shot lacerated the membranes considerably, I bethought myself of another plan; cutting a long switch, with a few twigs at its extremity, I stood at the bottom and *whipped* one down; he came sprawling with expanded wings on the ground, apparently with but little notion of flight, although unwounded. On being taken up by the wings he displayed uncommon fierceness, biting savagely and powerfully anything within his reach. Three or four more I obtained in the same manner and brought them home. When thrown up into the air in a room, they would not fly, but merely opened the volar membranes to break their fall, as with a parachute. Two, which I kept alive, hung themselves up by the hind-feet from the side of a cage into which I put them, and would not move, except to shift an inch or two; nor did the approach and arrival of night excite them to activity. One, however, which had contrived to secrete himself in the room, when, having taken both out of the cage, I turned my back for a moment, and which I had vainly searched for, I found at night, by going into the room with a candle: hearing a scrambling, I looked up to the top of the wall, where was my lost bat, endeavouring to suspend himself. On being touched he flew off, but soon alighted, and so repeatedly; sometimes, when he failed of taking a hold of the wall, he came to the floor, whence he readily rose, though very obliquely. I was struck with his expanse of wing when performing his noiseless flight around the room, and with his resemblance to a bird, aided by the enormous interfemoral membrane, which, being expanded by the hind-legs and depressed, looked like the broad tail of a flying-bird, and appeared to guide the motion in like manner. While taking some drawings of one, as it hung from the immense hind-feet, I was amused to see how it would thrust its nose into every part of the volar membranes, apparently searching for parasites (of which several were briskly crawling among the hair); and now and then it brought down one hind-foot, and scratched itself with exactly the motion of a monkey: and once I observed, after scratching its breast, it delivered something into its mouth. The flexibility of the ankle-joint was extreme, so that the foot could reach with ease any part of the body.

“ I presented to one a large cockroach, which he seized greedily and munched up, moving the jaws only vertically. The eating was attended with a loud and very harsh *crunching* of the teeth—not produced by crushing the horny parts of the insect, for it was equally perceptible when munching a bit of soft flesh. The jaws moved rapidly, but yet the mastication was a long operation, *for it appeared to me to be performed almost wholly by the canines*. As the insect was progressively masticated, portions were allowed to fall into the cheek-pouches (the one being pretty well filled before the other was used), which when full hung down on each side of the lower jaw, to the depth of three or four lines, like distended bags, displaying a warted surface. When the whole of one cockroach had been masticated and deposited in the pouches, it would take another, which was gradually disposed of in the same receptacles; then, after a few moments' intermission, by a contortion of the jaw, aided by the motion of the muscles of the pouch, a portion was returned to the mouth, and again masticated.

This was repeated till all was swallowed, and the pouches appeared empty and contracted up out of sight. The whole process was much like rumination. Small portions of the muscle of a bird, which were presented to one, he chewed up and deposited in the pouches; but after being regurgitated, and a second time masticated, they were expelled instead of being swallowed. The process of eating seemed an awkward one; it was a rapid succession of choppings with the long canines, through which the tongue was thrust about so nimbly that it appeared a wonder it was not impaled perpetually.

“In order to rest, like other bats they crawled upwards and backwards by means of the hind-feet, seeking the greatest elevation they could attain which afforded a hold for the claws. They were social, though both were males; usually hanging side by side, or sometimes with the leg of one crossing the leg of the other, or even one upon the other. Sometimes they brought their faces together, and licked each other's open mouths in a singular manner; and this appeared grateful to them. I did not hear either of them click or squeak.

“Pressed by numerous engagements, I was prevented from again visiting the tree until about ten days after. I then went thither in the afternoon, wishing to see the bats emerge for the night; but though I waited till after sunset, not one appeared. The next morning I smoked the cavity again, using the fumes of burning nitre and sulphur, but entirely without success. I hence inferred that they had deserted the tree as a dwelling on the first molestation. After some months, however, I again found it tenanted by the same species, if not the same individuals, and succeeded in obtaining another specimen, whose manners in captivity were identical with those recorded above.

“I have never seen the species abroad (so as to identify it), but my intelligent negro lad, Sam, observed two about noon on the 16th of April, the sun shining vertically. It was at a provision-ground at Belmont, where they were clinging to the limb of a young Avoçada pear (*Persea*). A Banana-bird (*Icterus leucopteryx*) was flying towards them, apparently with the intention of pecking them, on whose approach they flew away in different directions. The lad did not perceive them until the very moment of separation and flight, but he noticed that they were in actual contact, though he could not tell their position. No hole or hollow tree was near. Could they have been *in copulâ*?

“I conjecture that it is the present species to which reference is made in the following paragraph, which appeared in the ‘Salisbury Journal’ of February 6th, 1847:— ‘Mr. Thomas Dickon, an eminent farmer in Lincolnshire, had been induced to go to Jamaica, as manager-of some extensive estates there, with the intention of introducing the best systems of farming where they had been hitherto unknown. Accounts have been received that there is already every probability of a considerable increase of sugar being produced, by applying a new guano as tillage. It is the dung of large bats. The bats are said to amount to myriads; and Mr. D. having observed many of these singular animals entering the crevices of one of the numerous rocks, caused an opening to be made and the place explored. The cave was found to be 250 feet long, 20 feet broad, and from 20 to 30 feet high. The interior contained thousands of these animals, and appeared to have been their dwelling for ages. At the bottom of the cave, bats' dung, at least four feet in thickness, and amounting to about 600 tons in weight, was discovered, and found to be equal to the best Ichaboe guano.’

“I sent a copy of the above notice to my esteemed friend, Richard Hill, Esq., of

Spanish Town, who thus replied: 'I know Mr. Dickon, to whom your newspaper paragraph relates. He details his experience in the parish of Westmoreland [the same part of Jamaica as that in which my own observations were made—P. H. G.]; I will however endeavour to ascertain the precise locality in which he had discovered his extraordinary colony of bats. The Council of the Royal Agricultural Society of Jamaica, of which I am a member, had had its attention called to the manure to be obtained from faecal deposits in caves frequented by bats, and they had analyzed the material, but found it so largely charged with the comminuted wing-cases of insects, and so little acted upon by decomposition, that the azotized ingredients combined but slowly as a fertilizer. Several similar accounts were given to us of cave-deposits, to that furnished by Mr. Dickon. His discovery, however, being made in an unopened cavern, into which the bats had penetrated through crevices in the rock, has special recommendations to notice.

“My attention was some time ago drawn to a similar harbouring-place of our *Cheiroptera*. One evening, as I was crossing the marshes between Spanish Town and Kingston, by the high-road, I was surprised at sundown at the sudden rushing out of a stream of bats from the face of a cliffy hill that rises precipitously from the swamp. They continued pouring out for some quarter of an hour or twenty minutes; they stretched like a string for some hundred yards, in consequence of the one-by-one file in which they came forth from the crevice, and then dispersed themselves up and down and all about, covering the whole expanse of the contiguous marsh. The long highway perspective across the swamp; the level bed of rushes bending in wavelets to the evening wind; the distant mountains with beetling summits and broken declivities, lighted in angular patches by the setting sun, exhibited a wide, dilated and diversified scene, in which no object rose to interrupt the line made by the flitting swarms as they streamed out from the face of the cliff, and spread their myriad numbers over the plain. I have myself noticed the great depth of the rejectamenta of bats in these caverned recesses, but a great deal of it consisted of *undecayed down*, as well as faecal mutings, and undevoured fragments of insects.’

“In a subsequent communication my friend favoured me with a sample of the excremental deposits from a bat-cavern on Swansea estate, in the Vale of Luidas; and I forward it, with this paper, to the Zoological Society.

“I close this article with a few particulars of description, some of which are better observed on the living animal than on specimens dried or in spirit. A male measured as follows:—Muzzle to insertion of tail, $4\frac{1}{10}$ inches; expanse of volar membranes, $24\frac{3}{4}$; ear, from posterior base of tragus to tip, $1\frac{3}{10}$; ditto, from anterior base to tip, 1; tragus, longest side, $\frac{3}{10}$; shortest, $\frac{3}{10}$; nose to front angle of eye, $\frac{5}{10}$; nose to front of tragus, $\frac{1}{10}$. Colour varying; upper parts yellow-brown, more or less bright; a well-defined narrow line of pale fulvous runs medially down the back from the head to the tail; under parts pale fawn, bright fulvous or orange; face purplish; the muzzle and chin are much corrugated; face warty; the ears fall into elegant curves. The volar membranes are delicately thin, transparent and glossy; studded with minute, white, papillary glands, which for the most part follow the course of the blood-vessels, but are largest and most numerous in the vicinity of the trunk. The membranes being attached along each side of the spine, with an interval in the middle of the back of but $\frac{1}{10}$ ths of an inch, the body is, to a great extent, free. The wing, when at rest, has but a single fold, the ultimate joint of the second and third fingers being brought back upon the penultimate. The reproductive organs are large and prominent. At the

base of the penis are two follicles, secreting a dark brown substance, dry and lumpy, but friable between the fingers, most insufferably musky, the odour from which is strongly diffused by the animal during life.

“From the width of the gape, the length of the teeth, and the power of the jaws in this species, together with the ferocious eagerness with which my captive specimens snatched at large cockroaches, I conjecture that its insect-prey is large; probably nocturnal beetles and the larger moths and sphinges.”—*P. H. Gosse, in 'Proceedings of Zoological Society,' Nos. 176 and 177.*

Sagacity of a Cat.—We have a young cat in our house we call Toby, who, among other frolicsome tricks, exercises his sagacity by opening the doors. It was often a matter of surprise that the door which opens into the garden should frequently be found open: the cause was soon discovered, for Toby was seen one day swinging into the passage suspended to the handle of the latch. It is really curious to observe the means used by the kitten to effect his purpose: he springs up to the latch, puts one paw through the handle, by which means he suspends his body against the door; with the other paw he pats the latch until the door opens. Toby seems fond of this sport, which he repeats many times in the course of a day. There is another door which he readily opens; we suppose by similar means. I should not have noted down the gambols of a kitten, had I not an impression on my mind that this species is capable of exhibiting a far greater degree of sagacity than is usually attributed to them, and which is more fully developed when the animal is kindly treated.—*W. Bentley; 3, Critchell Place, December, 1847.*

Habits of the Field-Mouse.—The notice (Zool. 1901) of the young otter holding on by the fur at the root of the parent's tail, induces me to state that, at the end of last October, I witnessed something similar take place with the field-mouse and her young. Happening to be standing in a field from which potatoes were being raised, I observed, in and around a furrow which the plough had just made, a field-mouse and seven or eight young, fully two-thirds grown. Four or five of them were running in different directions, at a pretty rapid rate; but three others were firmly attached to the hinder part of the mother. She seemed to drag them away with considerable difficulty, judging from the comparatively slow progress she made. After having drawn them eight or ten yards, and being pursued, she parted company with them, turned round, sat up upon her hind legs like a squirrel, rubbed her face, and then scampered off at full speed.—*G. Gordon; Birnie, December, 1847.*

Rats feeding on Eels.—“In cutting through an embankment in a field adjoining the river Lune, the other day, for the formation of one of the culverts rendered necessary by the passing of the North-Western Railway in that direction, the labourers met with between 15 lbs. and 20 lbs. of eels, some quite fresh, and others in the last stage of putrefaction. They varied from a quarter to half a pound in weight, and consisted of the common silver-bellied or river eel, and Lilliputian specimens of the conger or sea eel. The latter, of course, had come up with the tide. As teeth-marks were visible on the heads of most of them, it was conjectured they had been destroyed in that way, and stored for winter provision, by some animal whose retreat was not far distant. This proved to be the case. On digging a little further out bounced a matronly rat, with seven half-grown young ones at her heels. The workmen gave chase, and ultimately succeeded in killing both mother and progeny, with a solitary exception, the trunk of a neighbouring tree affording an asylum to one of the family. The embankment is about 100 yards from the water's edge, so that it must have required consider-

able time and labour on the part of the old rat to have dragged the eels thither."—*Lancaster Guardian*.

Occurrence of the Oared Shrew at Birkenhead.—Having captured some little time since a species of *Sorex* which was new to me, I find, on an accurate comparison, that it agrees exactly with the description of the oared shrew (*Sorex remifer*) described in Bell's excellent work on British Quadrupeds; and thinking it may be interesting to some of the readers of your instructive periodical to hear of a new locality, far from any other yet mentioned, showing the more general distribution of the animal, I take the liberty of sending you this short notice. It was captured by me apparently hunting for food, amongst dead leaves, at some little distance from the water, in a plantation through which there is a running ditch in connexion with a small pond, and is now in my possession, carefully preserved.—*Wm. Webster, jun. ; Upton, Birkenhead, December 24, 1847.*

Moles destructive to Wireworms.—The 'Essex Herald' publishes a letter from the Rev. G. Wilkins to a farmer, who wrote to him, inquiring how the wireworm had been exterminated on the reverend gentleman's land:—"Some ten years since, when I came to my living, and commenced cultivating the little land I hold, it was, I may say, full of wireworms. Nothing could have been worse, for my crops were, in some places, ruined by them entirely. What, then, did I do? I adopted a plan which I recommended and published in periodicals many years since, namely, encouraging moles and partridges on my lands. Instead of permitting a mole to be caught, I bought all I could, and turned them down alive; and soon my fields, one after another, were full of mole-hills, to the amusement of all my neighbours, who, at first, set me down for half a lunatic; but now several adopt my plan, and are strenuous advocates of it. My fields became exactly like a honeycomb; and this continued even among my standing and growing and ripening crops; not a mole was molested, but I still bought more. This summer I had fourteen brought, which I turned down, but they were not wanted; I have nothing for them to eat—all that moles live upon is destroyed—and so, poor things, they must starve or emigrate to some distant lands, and thus get bowstrung by savage men, whom they aim to serve. Adopt my plan, and it will be sure to answer. If you have a nest of partridges, also encourage them; all the summer they live on insects, on wireworms, &c.; and consider how many millions a covey will destroy in a single summer. Again, always remember that moles feed upon insects, and of which the wireworm is the chief; if you doubt this, open a mole and peep into his stomach. Again, do not fear that moles injure your crops either in a field or in a garden; it is a low and vulgar error to suppose that they root up young corn; they never go anywhere until the wireworms have first destroyed the plants, and then, innocent things, they are punished for others' faults! If you do not like to see their hills, knock them about with a hoe, as I did; it is a healthful amusement, and they will do your lands good. Do not despise my plan because the farmers will not adopt it in your neighbourhood: farmers adopt nothing till driven to it, and nothing that is new and good."

Notes on the Quadrupeds and Birds of the Northern Districts of Inverness-shire.

By ARCHIBALD HEPBURN, Esq.

HAVING lately returned from visiting some of the most wild and romantic scenery lying to the north of the Caledonian canal, and in the county of Inverness, I have been induced to communicate these meagre wayside notes on its fauna, in the hope that they may prove interesting to some, and useful to those who have the inclination and time and better ability to complete the work. Much of the information given must however be received with caution; for though the journey was performed on foot, yet it was at a rate too rapid to enable one to speak with all desirable accuracy on several points; but such as they are, I trust they will prove lights and land-marks to others.

Ever since the Highlands became a favourite resort for English sportsmen, a relentless war has been waged against all the native predaceous animals. The badger, the pine marten (*Mustela martes*) and the polecat are still pretty common in certain places, particularly in the wooded wilds of the upper parts of Strath Glass. From all that I could learn, the weasel (*M. vulgaris*) and the ermine (*M. Erminea*) are widely distributed; and I was greatly surprised to see many skins of both species in the cottage of a deer-forester at Aultbae, Glen Affrick, and still more to learn that they were both common at all seasons: the latter is the most abundant. Around the cottage was a treeless, desolate waste, of peat bogs and craggy mountains; storm-clouds, surcharged with rain, brooded over thin lofty peaks; the streams leapt down their rugged sides in glorious cataracts, and the valley was filled with their eternal roar; beautiful rainbows ever and anon bespanned the glen, but they give no promise as in other climes; it seems to be the very land of storms. I saw it in the pride of its dreary summer, and the forester described its wintry glories, when almost all its feathered inhabitants hie away to more kindly skies. The existence, then, of these two species of weasel proves that they must find an ample supply of food; and as rabbits are not found there, it follows that they must chiefly prey on mice or shrews, of which I would much like to procure specimens; very probably the latter may be found to be new to our fauna. The otter is common on many lochs and streams, and very abundant on the shores of Loch Carron, an inlet of the Atlantic. The fox is not so destructive to the poultry-yards and lambs as formerly. The introduction of rabbits in some places, and the killing of so many predaceous animals and birds by gamekeepers, have allowed the alpine hares (*Lepus variabilis*) to increase, greatly to the detriment of sheep-farmers, and so Reynard has become more discreet in his depredations: a professional huntsman, who keeps a small party of rough terriers and wire-haired greyhounds, is generally employed by the farmers in a large district to kill the foxes. The wild cat is still found in the wild woods, though its numbers are much diminished. The mole is common in the low grounds. I observed a shrew (*Sorex*) about 100 feet below the summit of Mealfourvenie, near Loch Ness, and which is 2700 feet above the level of the sea. I heard that the squirrel, which is common in many parts of the district, occasionally does much damage to young plantations. Nothing satisfactory could be learned of the genus *Mus*, or the allied one, of *Arvicola*. The common hare and the rabbit are found in the lowlands, and the alpine hare on the hills and mountains: I pursued one in his summer's dress down the side of Mealfourvenie, until he took refuge

amongst some boulders of conglomerate, and I afterwards learned that this is their favourite way of escaping pursuit from shepherds or their dogs.

The herds of red deer are increasing all over the Highlands: Glen Affrick is a famous forest, but I had no time to spare for peeping into the *corries*, where they resort during the day. The roebuck is very common in some glens where there is a little cultivation.

The Rev. G. Gordon, in his very instructive Fauna of Morayshire (Zool. 424), says, under the head of *Mus sylvaticus*, "In July, 1836, on the top of Maam Soul, one of the highest hills in Strath Glass, and about 3000 or 4000 feet above the level of the sea, evident traces of a colony of some small animal were seen among withered grass, rushes, &c., and debris." I kept this fact in view, and would have much liked to have climbed the noble mountain, with a tall shepherd as my guide, but when I passed that way his head was wrapt in a storm, the day was far spent, and angry night was coming. The occurrence of the weasels in such a wild place as Aultbae is an interesting fact, and I regret having no means of ascertaining its altitude. The geographical range of our smaller Mammalia is thus an interesting subject, and worthy of the attention of the officers of the Royal Engineers, now engaged in the triangulation of Scotland amongst these wild hills.

Gamekeepers have waged such an exterminating warfare against the rapacious birds, that eagles, especially, have become exceedingly scarce. A deer-forester showed me the wings and claws of a golden eagle (*Aquila chrysaetos*), which had been caught in a trap placed on the margin of a pool, in which the carcase of an alpine hare had been placed as bait, so that the bird had to stand on the fatal spring if he had no wish to wet his feet. I thought it a hard case to have wandered so far amidst savage mountains without meeting with an eagle, and by so many noble lochs without seeing an osprey on the wing. The beautiful kestrel (*Falco tinnunculus*) is very common about Loch Ness, and up the Beaully and the Glass to Loch Bennavian. The swift (*Cypselus murarius*) is common at Dingwall and Inverness: a solitary pair was seen at Loch Bennavian. Our three British species of swallow are very generally distributed. The nightjar (*Caprimulgus europæus*) is very common about Foyers, on Loch Ness. The gray flycatcher (*Muscicapa grisola*) is more abundant on the banks of Loch Ness, and up the Beaully river for several miles, than I have observed in any part of Scotland. The raven (*Corvus corax*), a few were observed in the wilds of Glen Affrick and between Loch Carron and Dingwall. The carrion crow (*Corvus corone*) was never observed in the Highlands, until I reached Blair Atholl, Perthshire; whilst the hooded crow (*Corvus cornix*) was very widely distributed on field and moor. The jackdaw and rook were common in the cultivated grounds; the latter is very widely distributed over the moors and mountains, in the month of August. The magpie (*Pica caudata*) seems to be a rare bird; however, I met with a pair on the Glass, near to Loch Bennavian. The starling was widely distributed over the cultivated grounds. I was greatly surprised at not meeting with the dipper (*Cinclus aquaticus*), nor could I find any fresh-water Mollusca in my very hurried and seldom-repeated researches for them; possibly this deficiency may account for the absence of the dipper, which Professor Macgillivray says is very common in the Hebrides. Blackbirds and song-thrushes were common in all the wooded parts, but the latter were not so numerous as I had been led to expect. Family-parties of missel-thrushes bespoke the presence of this new and adventurous colonist. The ring-ouzel (*Turdus torquatus*) was very common up Strath Glass, Glen Affrick, and on the shores of Lochs

Duich and Alsh, on the Atlantic side. The modest little hedge-chanter (*Accentor modularis*) was much missed about the homesteads, and yet, according to Macgillivray, it is common in the Hebrides, where there is no wood for shelter. The redbreast was very common in wooded glens. The whinchat (*Saxicola rubetra*) was very common, not only in the wooded glens, but amidst the most savage scenery of Glen Affrick and the Falls of the Glomach. The wheatear (*Saxicola œnanthe*), widely distributed. The redstart (*Sylvia phœnicurus*), common about Foyers. The whitethroat (*Currucula cinerea*), pretty common about Loch Ness, and up Strath Glass, as far as Kilmorach. The wood-wren (*Sylvia sibilatrix*), pretty common about Foyers, and methinks I heard his melancholy call-note in Glen Morrison, a few miles distant from the former locality. The willow-wren (*Sylvia Trochilus*) is very numerous in all the wooded glens up Strath Glass, nearly as far as the mountain of Knockphin. The golden-crested wren (*Regulus auricapillus*), common in woods. The sedge warbler (*Sylvia phragmitis*), scarce, Glen Urquhart. The wren (*Sylvia troglodytes*), common in the wildest woods. The pied wagtail (*Motacilla Yarrelli*), common in certain localities. The gray and yellow wagtail (*Motacilla Boarula*), only seen near Kintail, Loch Duich. The meadow-pipit (*Anthus pratensis*), common. The skylark (*Alauda arvensis*), common in the lower grounds. The greater tit (*Parus major*) was scarce in the woods; whereas the blue tit (*P. cæruleus*), the cole tit (*P. ater*), and the long-tailed tit (*P. caudatus*), were very common and widely distributed.

The corn bunting (*Emberiza miliaria*) occurred sparingly in low-lying cultivated ground about Inverness. The yellow bunting (*E. Citrinella*) was very common in the cultivated valleys. The black-headed bunting (*E. schœniclus*), pretty common. The chaffinch (*Fringilla cœlebs*), very abundant and widely distributed. The gray linnet (*Linota cannabina*) and the green linnet (*C. chloris*) were both common and widely distributed, but the former was not so numerous as I had been led to expect from the nature of the ground. The sparrow (*Passer domesticus*), about towns and villages, but not so common about the homesteads as in better cultivated districts. The wood-pigeon (*Columba Palumbus*), common and widely dispersed, occurs even in valleys where the cultivation is limited.

The partridge (*Perdix cinerea*), pretty common in cultivated fields. The blackcock (*Tetrao Tetrix*), common in rough ground of moderate elevation. The red grouse (*Lagopus scoticus*), common on the moors. The golden plover (*Charadrius pluvialis*) is also common, and so is the lapwing. It was surprising that not a curlew was seen, either on the shores of the Atlantic or German Ocean, or in the wilds of the interior, where they resort to breed. The pleasant little common sandpiper (*Totanus hypoleucos*) enlivens the banks of almost every lake and large stream with his peevish call-note. A few snipes (*Scolopax Gallinago*) were found on the moors, and the crake (*Crex pratensis*) was heard in the corn-lands. The gallinule (*Gallinula chloropus*) was scarce, and the coot (*Fulica atra*) was only seen at the embouchure of the Urquhart into Loch Ness. The stately heron (*Ardea cinerea*) lent a charm to many a moorland and river scene. Very few mallards were seen about the moorland lochs where they breed.

I observed a large pull, which I took to be the lesser black-backed (*Larus fuscus*) or the herring gull (*L. argentatus*), fishing in Loch Lochy; both species were seen on the east and west coasts. The black-headed gull (*L. ridibundus*) was the only other species observed; it was both abundant and widely distributed.

I shall now endeavour to enliven these details by a few notes on the habits of the

birds. Early in the past summer, an eagle, which had been caught by one foot in a trap on Mealfourvenie, flew about the neighbourhood for the space of a month, and was afterwards found on the heights above Glen Morrison, shortly after his death. A friend of mine knows a man who saw the trap in the scale, and it weighed $4\frac{1}{2}$ lbs. The voice of the kestrel and the cooing of the wood-pigeon were very common accompaniments to the music of the innumerable cascades that I visited in wooded glens. The latter is comparatively a recent colonist, and migrates from the uplands to the sea-coast on the approach of winter, where turnips and red clover are largely cultivated; but as the cultivation of these plants is on the increase, even in the upper parts of Strath Glass, to assist the flock-masters in keeping their sickly stock in good heart at all seasons, it is probable that ere long a few of these parasitic farmer's birds will remain the winter through. Neither pheasants nor wood-pigeons can subsist comfortably apart from the cultivated fields: where they abound, they are a grievous curse to the farmer, and therefore to this bread-importing nation. Do swifts ever nestle about rocks? I saw a pair cruising over Loch Bannan, which is many miles distant from church or castle. The bank martin is not so numerous as the other species of the genus, in the upper part of Strath Glass. One fine evening in July, when wandering amongst the groves of the graceful birch which lie to the eastward of the celebrated fall of Foyers, I heard the whirr of the goatsucker; from the top of the wood his fellows took the note, and soon the air resounded with their strange spinning-wheel-like note; and from the peculiar nature of the ground, I readily perceived how a bird would spring from his perch, glide smoothly along, fluttering at intervals, or rising and falling and smiting his wings over his back, like the wood-pigeon during the breeding season. Jealousy was there, and strongly did their busy contention sound on that lone hill-side, amidst the roar of the distant cataract, the sighing of the night's wind, the hush of Loch Ness, and in the light of the moon, high over the noble hills of Strath Errick. The great abundance of the gray flycatcher and the willow-wren proves that the entomology of the banks of Loch Ness must be very extensive; their young ones, and those of the redbreast, had just come abroad, so that, what with their clamorous calls and the choral chirpings of troops of tits, the woods were very animated. Memory will ever associate the lively ring ouzel and the whinchat with the wild scenery of Glen Affrick and the loch of that name. Black and sterile mountains towered up to a vast height on either side of the glen, their rugged tops were often enveloped in tempest, and beautiful masses of mist floated along their sides, which were rent into huge *corries*. There were the mountain streams, streaking the uppermost slopes, now buried amongst rocks, now flashing in the fitful sunshine, now leaping in glorious cataracts, now growling away amidst huge boulders of gneiss and granite, and amongst thickets of stunted birch, alder, hazel and juniper, into the dark waters of the loch. Few wild flowers deck these solitudes: *Saxifraga aizoides* and *Ranunculus flammula* by the streams, *Narthecium ossifragum* in the bogs, and the eye-bright smiles as you pass. Here stood one of the noblest primeval pine-forests of the north, sacred to freedom, where Rome's conquering eagles never flew; but a company of merchants, from Norwich I believe, have been here, and few and sad are the memorials of the past: scattered over the rocky knolls of scanty soil, or dotting the mountain side, with twisted stem, gnarled bark, scanty foliage and many a scathed limb, these old trees link the past with the present, and the wind stirred them with a melancholy tone. Now and then a little band of blue and black-headed tits would flit from tree to tree, but the attention was speedily arrested by the 'clack clack' of the

fine-plumaged ring ouzel: up sprang his family from rock and thicket, and away they hied to some secure resting-place, or scudded wildly across the glen. Meadow pipits were very scarce, and the whinchat was pre-eminently the bird of the treeless solitudes: how pleasantly did his tiny challenge sound on the wild mountains about the falls of the Glomach (150 feet high), where the juniper crouches lowly and is overtopped by the ever-graceful fern.

We have few data of the geographical distribution of our summer birds north of Morayshire; and if I may judge from the 'History of British Birds,' by Professor Macgillivray, who is a first-rate authority in these matters, I may perhaps be allowed to state, that these observations have advanced the limits of the migration of the following species:—*Caprimulga europæus*, Foyers; *Sylvia phœnicurus*, Loch Bannan, Strath Glass; *Sylvia sibilatrix*, Foyers; *Sylvia phragmitis*, Glen Urquhart. At p. 240, vol. ii. of the above-mentioned work, *Motacilla Boarula* is stated to be rare to the north of Inverness, and unknown in the Hebrides. I met with several on Loch Duich, which is not far from Skye. Access to a good library can alone solve these doubts.

A. HEPBURN.

December, 1847.

Birds of Sutherlandshire, Ross-shire, &c.—During an excursion through Sutherlandshire and the outer Hebrides, this summer, we were fortunate enough to meet with several birds, which you may think worthy of notice in the 'Zoologist.'

At Thurso I procured a gyr falcon of the first year, which had been shot a short time before near the town. On one of the numerous lakes between Thurso and Tongue, we fell in with a male golden-eye (May 17), and from what we heard in Sutherlandshire afterwards, we had no doubt that the female was upon her eggs.

Upon Loch Laighall, in Sutherlandshire, we found several pairs of the bean goose (*Anas segetum*) breeding, and procured their eggs, which agree exactly with the description given of them in Yarrell. They lay generally from six to eight eggs, but are so constantly robbed that they are leaving Loch Laighall, and are betaking themselves to the smaller lakes, which, from their situation, are inaccessible to mankind, as no boat can be brought to them. After their nests are robbed they never lay again. Upon two of the islands we found the greater and lesser black-backed, the herring and common gulls, breeding, all—except the greater black-backed—in considerable abundance. Upon Ben Stomino, a mountain about eight miles from Tongue, we discovered an eyrie of the golden eagle, but were unable, from want of ropes, to reach it. Upon a subsequent day two eaglets were taken. The beginning of April is the usual time of the two species of eagle breeding in this county. The hen harrier is not uncommon: we found a nest with six eggs, and shot a very fine old female. In the southern part of the county we met with Montagu's harrier and its nest, not, I believe, before noticed so far north: not a season passes but one nest at least is found near Bonar bridge. The water ouzel is very common on every stream.

Between Tongue and Altrehara, on the 20th of May, we procured a fine specimen of the red-throated diver, on a small pool near the road-side. A single egg was deposited close to the water's edge, and upon dissection a second perfect egg was found in her ready for exclusion. Near Loch Maddie, on the following day, we killed a fe-

male greenshank with a perfect egg in her, evidently, from the state of the ovaries, the last of the four, which from appearances she must have laid in a very short time : we searched in vain for the nest. The greenshank is by no means uncommon here. On another small loch we flushed a female golden-eye. The wigeon breeds here in tolerable abundance ; also the redshank and curlew. On Loch Maddie we saw three fine specimens of the black-throated diver, but from their wonderful power of diving we fired five ineffectual shots at them : they evidently had not commenced breeding. We saw on the same loch a few pairs of the gray-legged goose, and found one egg, which is rather smaller than that of the bean goose, and more pointed at the smaller end. The hooded crow breeds on the islands of the loch in great abundance, building on trees a nest very similar to the carrion crow, and laying four or five eggs, rather smaller than the carrion crow, of a greenish-blue colour freckled with brown.

Near Laing, on Loch Shin, we saw another pair of black-throated divers, which were very shy. At Bonar bridge, on the borders of Ross-shire and Sutherlandshire, we found a small collection of birds made in this district by William Dunbar : among the most interesting were a fine osprey and two eggs, taken on the 15th of May near Scourie, from an island in one of the numerous lochs of that district : a black-throated diver and its egg, taken from Loch Urgill, near Inchnadamph, on the 21st of May ; it was a male bird in very fine plumage : a fine specimen of Buffon's skua, killed by the gamekeeper looking over the Bonar bridge district in 1846. Between Bonar bridge and the west coast, opposite Skye, we did not observe much beyond several pairs of wigeon ; a white-tailed eagle near Loch Alsh, on the 26th of May ; a fine specimen of the northern diver on the 28th, between Loch Alsh and Kyleakin ; and in the same locality, innumerable oyster-catchers, two or three pairs of the red-breasted merganser, and the common linnet of the north of Scotland, namely, the twite, in great abundance.

Should it be agreeable to you, I will send you an account of our discoveries in the outer Hebrides and St. Kilda, at a future time ; and will merely just add a list of the birds seen in the counties of Sutherland and Ross, with an account of a successful expedition in search of that rare bird the black-throated diver. On a small loch between Inchnadamph and Oikel, on the 21st of June, close to the road-side, we got sight of a fine pair of these birds. We procured a boat, and the assistance of Mr. John Sutherland, the duke's gamekeeper, and chased them for at least three hours, during which time they only allowed us once to get within shot : they never once took wing, but the rapidity of their diving was wonderful, sometimes keeping under water near two minutes, and coming up in quite a contrary direction a quarter of a mile off. We then dragged our boat a mile over the moor, to Loch Urgill, a large loch, with two large islands and two or three small islets, perhaps not more than ten yards long by four wide. Here a nest had been taken in the month of May. Upon coming in sight of the loch, we saw through our glass a pair of black-throated divers close to the islet where the eggs had been taken ; and here again the same pair had chosen exactly the same spot for nidification, and we discovered an egg laid without any nest close to the water's edge. While the keeper concealed himself, in hopes of getting a shot at the parent birds, we took another survey of the lake ; and close to another islet, about half a mile from the one previously mentioned, we espied another pair, and again we found two eggs,—in this case placed in a nest made of a few rushes and dried grass, about a yard from the water. In neither case were we fortunate enough to get the old birds, though we were concealed till near dusk, so cautious are they, ex-

cepting when they have young ones, and then they do not dive till the last extremity. The eggs vary in colour, some being of a dark chocolate, others quite a light brown, all of them spotted with black, chiefly on the larger end, and in size between those of the great northern and the red-throated diver. It has been said that the colour of the eggs of these birds varies only from the time that they have been set upon, but in this case that idea is not verified, for they were all in precisely the same state; and an egg taken on May 21st, quite fresh, was in colour the darkest of the six which we procured.

List of Birds seen and procured in Sutherlandshire and Ross-shire, 1847.

- Gyr Falcon (young). Thurso, March.
 Golden Eagle and eyrie. Ben Stomino, May 19.
 White-tailed Eagle. Loch Alsh, Ross-shire, May 27.
 Hen Harrier and nest. Foot of Ben Stomino, May 19.
 Ash-coloured Harrier and nest. Bonar bridge, May 21.
 Kestrel. Everywhere common.
 Peregrine Falcon. Ben Laighall, May 20.
 Osprey and nest, May 17; Assynt, June 19.
 Hooded Crow and nest. Everywhere abundant.
 Rook. Balmagowan, Ross-shire, May 25.
 Ring Ouzel and nest. Ben Laighall, Altrehara, May 20—22.
 Blackbird. Very common.
 Water ouzel and nest. Common, Tongue, Altrehara, May 20,
 Cuckoo. Tongue, Ben Laighall, May 20, 21.
 Pied Wagtail. Common, Sutherlandshire, May 16—22.
 Wheatear. The commonest bird of Sutherlandshire, May 16—22.
 Bullfinch. Garve, Ross-shire, May 25.
 Sparrow. Thurso, May 16.
 Mountain Linnnet. Everywhere common.
 Chaffinch. Sutherlandshire, common.
 Yellow Hammer. Ditto.
 Reed Bunting. Ditto; and eggs found June 19.
 Redbreast. Sutherlandshire, very common.
 Willow Wren. Ditto.
 Common Wren. Ditto.
 Stonechat. Ditto.
 Ring Dove. Everywhere where there is wood.
 Rock Dove. Caves, Thurso; Kyleakin, May 15, 28.
 Martin. Sutherlandshire, Ross-shire, common, May 16—28.
 Titlark. Ditto.
 Skylark. Ditto.
 Rock Lark. Thurso, May 16.
 Partridge. Tongue, May 18.
 Golden Plover and nest. Tongue, Altrehara, common, May 20—22.
 Ring Plover. Very common everywhere in Sutherlandshire, May 16—28.
 Peewit. Ditto.
 Common Sandpiper. Ditto.
 Oyster-catcher. Ditto.

- Curlew. Very common everywhere in Sutherlandshire, May 16—28.
 Heron. Sutherlandshire, Skye, May 20, 28.
 Redshank. Loch Naver, Sutherlandshire, May 20.
 Greenshank and eggs. Ditto.
 Snipe. Everywhere common, Sutherlandshire, May 16—27.
 Jack Snipe. Loch Naver, May 20.
 Gray-legged Goose and eggs. Loch Shin, Loch Assynt, Loch Naver, May 20—24.
 Bean Goose. Loch Laighall, May 19.
 Bean Teal. Ross-shire, Auchnasheen, May 26.
 Wigeon. Loch Naver, May 20.
 Golden-eye. Near Tongue, Loch Naver, May 18—20.
 Little Grebe. Loch Naver, May 20.
 Wild Duck. Very common. Young ones, May 20.
 Red-breasted Merganser. Between Loch Alsh and Skye, May 28.
 Northern Diver. Ditto.
 Red-throated Diver and egg. Tongue, May 20 ; Altrehara, May 18.
 Black-throated Diver. Loch Maddie, May 20 ; Loch Shin, May 18 ; Loch Argele,
 Loch Altnagealgach, June 21.
 Black-headed Gull. Near Thurso, a colony, May 18.
 Great Black-backed Gull. Loch Laighall, Loch Shin, Loch Assynt, Loch Naver,
 Loch Maddie, common.
 Lesser Black-backed Gull. Ditto.
 Kittiwake. Ditto.
 Common Gull. Ditto.
 Herring Gull. Ditto.
 Buffon's Skua. Bonar bridge, August, 1846.

I might add what will perhaps be interesting to your readers, that on reaching Inverness, on my way south, June 23, I was shown some specimens of the crested titmouse, with some unblown eggs, taken a few days before from the pine woods of Strathspey, where they are by no means uncommon. The boy who took them told me they were always to be found in a hole of a tree highish up; he took the female with the nest and five eggs this year. The eggs are the size of those of the blue titmouse, and like them in colour, with the addition of being more mottled on the larger end.—*W. M. E. Milner ; Nunappleton, Tadcaster, October 11, 1847.*

Ornithological Notices in Norfolk for the month of December, 1847.—The following account has been furnished us of the attack observed to be made by a glaucous gull upon a dead coot at Horsea, as mentioned in our last. The coot was shot as it rose out of a reed-bush, and the gull, which with many others was flying over head at the time, immediately pounced upon the former, and was killed while standing upon it. Another specimen of the glaucous gull is said to have been killed at Blakeney, as also an Iceland gull, and some examples of the pomarine skua. The waxwings mentioned in our last to have been killed at Horsea were male and female, and their crops contained berries, apparently of the whitethorn: on the 27th instant three more examples of this species (two males and one female) were killed at Barnaby, near Lowestoft, a fourth which was seen with them having escaped. We are indebted to Mr. Frere for pointing out to us a somewhat curious feature in the specimen of the gray-legged goose which we have mentioned as of recent occurrence in Norfolk, viz., the existence of black markings about the belly and between the legs, much resembling those found

on the breast of the white-fronted goose, but somewhat less decided. About the middle of the month a rough-legged buzzard, in the plumage (probably) of the second or third year, was trapped at Bretenham, near Thetford, in this county, and is still kept alive: we have not heard of the occurrence of any other specimens. The young birds appear to be decidedly more gregarious than the more adult. The mealy redpole has been abundant during the month, and the commoner species of wild-fowl have occurred in the usual abundance. The great gray shrike has also occurred at Carrow.—*J. H. Gurney, W. R. Fisher; December, 1847.*

I am sorry that I made a rather important mistake in copying the "Ornithological Notices in Norfolk for November, 1847," (*Zool.* 1966). The bird captured at Westwick was not the 'white-headed' but the 'white-tailed' eagle (*H. albicilla*).—*W. R. Fisher; January, 1848.*

Provincial Names of Birds.—I beg to enclose a list of a few provincial names of birds in this neighbourhood: they are all with which I am at present acquainted.

Chiff-chaff.—Featherpoke: on account of its nest being lined with feathers. Poke is the Yorkshire word for a sack.

Wood-warbler.—Small straw.

Chaffinch.—Spink.

Yellow Bunting.—Yolering: most probably a corruption of gold ring.

Starling.—Shepster.

Magpie.—Pienet.

Wren.—Peggy.—*J. S. Webb; Huddersfield, November 6, 1847.*

Dates of the Arrival of Migratory Birds at Aylsham in 1847.—I beg to forward for insertion in the 'Zoologist' a few notes of the appearance, &c., of birds this year. My observations were principally made near Aylsham.

Swift. May 6.

House Martin. May 1.

Sand Martin. April 27.

Swallow. April 30.

Greater Pettychaps. April 30.

Redstart. April 26.

Yellow Wagtail. Prior to April 28.

Cuckoo. May 5.

Redbreast. Young left nest May 4.

Fieldfare. Last seen April 20.

Song Thrush. Eggs, April 4.

Rook. Hatched prior to April 14.

Hooded Crow. Last seen March 24.

By these few notes it may be seen, that although many of our summer birds arrived early, yet the fieldfare and hooded crow remained very late, if the periods given for their usual departure in Mr. Jenyn's calendar are correct. The cuckoo was not heard by myself before May 5, but I was told by others that they had heard it a fortnight previously.—*H. T. Frere; Blofield, November 17, 1847.*

Gyr Falcon: Mistranslation in a former Number of the 'Zoologist.'—I wish to call the attention of the readers of the 'Zoologist' to a mistranslation of a word in the passage from Professor Tschudi's work quoted in the 'Zoologist' (*Zool.* 1806). The word rendered 'gyr-falcon' is doubtless 'geyer-falke,'—'vulture-hawk.' A very different bird from the *Falco Gyrfalco*, and the observations made upon the habits of

the one will not at all agree with those of the other. The similarity of sound has doubtless led to the mistake; perhaps indeed our own word 'gyr-falcon' is derived from the bird being of a vulture size; or perhaps it may be from its wheeling or gyrating flight: at any rate the one bird is at the head of the noble, the other at the bottom of the ignoble birds of p ey.—*Id.*

Plumage of the Tawny Owl (*Syrnium stridula*).—The bird from which this description has been taken was kept in a garden, in a state of half-domestication, for the purpose of seeing if any change of plumage would take place; but this was never the case. The facial disk had its posterior two-thirds reddish-brown, the rest grayish-white; the sides of the face well defined by a dark-brown ring; top of the head a mixture of brownish-black and rufous, with two irregular white stripes, passing from nearly over the eye backwards to near the occiput; hind neck of the same colour as the head, but with less black; back rufous-brown, each feather having a dark central mark; scapulars principally white, tipped with dark brown; lesser wing-coverts nearly the same, as are also the greater; wing-primaries barred with buffy-white and dark-brown; two middle tail-feathers nearly uniform in colour, being chestnut-coloured; the others the same, irregularly barred and mottled with dark brown; the whole of the under parts a mixture of palish rufous and white, each feather having a narrow central mark of darker brown. This bird was four years old, and in deep moult at the time of his death; on dissection it was found to be a male. All the new feathers which were coming were of a bright ferruginous or chestnut colour. It is well known that many individuals of this species occur of a grayish colour, and Mr. Yarrell has described one of these as an adult male. He says, "The females are larger, and much more ferruginous or tawny in the general colour of their plumage. Young males are for a considerable time, probably till their second autumn, similar in colour to the females." I think this specimen distinctly shows, if the gray birds are the perfectly adult, that it requires as long a time as five years to attain this plumage. I am much more disposed to consider it as a variety to which the tawny owl is very subject, for I distinctly remember a gentleman having three in a garden, which had been taken from the nest that season, two of which were decidedly gray birds. Two specimens, male and female, killed together, in November, 1846, were both chestnut or tawny birds, and exactly similar in plumage. From an examination of the bones, I should think them both old individuals. I have been somewhat particular in describing this specimen, because the exact age and sex are known, and there is still much obscurity about the plumage of the tawny owl.—*Robert F. Tomes; Welford Hill, near Stratford-on-Avon, January 10, 1848.*

Occurrence of the Scops Eared Owl (*Scops Aldrovandi*) near *Wexford*.—I find I have noted down, under date of 19th of last 4th month, the following particulars of the capture of the above bird.—"Our Wexford bird-preserveder has lately received a recent specimen of that most rare and beautiful little owl. He got it from the vicinity of Kelmore (a fishing village on our south coast), and was unable to give me any further information about it."—*Joseph Poole; Killiane, Wexford.*

Occurrence of the Bohemian Waxwing near Newcastle-on-Tyne.—A fine specimen of that rare and uncertain visitant, the Bohemian waxwing (*Bombycilla garrula*), was shot at Axwell on the 29th of December last.—*T. J. Bold; 42, Bigg Market, Newcastle-on-Tyne, January 18, 1848.*

Early Nidification of the Robin (*Erythaca rubecula*).—I to-day saw a robin's nest with five eggs, which was found in a garden at Wheldrake, near this city. The bird

was first observed sitting on it ten days ago, but afterwards deserted. Till to-day the weather has generally been very mild for the season of the year, which may in a measure account for this early nesting. To-day however is more seasonable, the ground having put on its snowy mantle.—*Beverley R. Morris, A.B., M.D.; York, January 18, 1848.*

Curious Nesting-place of Robins.—In the summer of 1846, a pair of redbreasts (*Erythaca rubecula*) made their nest and brought up young in a constantly-inhabited bed-room at Roydon Hall. The nest was made on the top of the window-curtains.—*H. T. Frere.*

Extraordinary Assemblage of the Golden-crested Regulus (Regulus cristatus).—About a fortnight since, whilst shooting, at the sand-banks on the Dorsetshire coast, near Poole, I was passing along the edge of a large fir-plantation, which extends completely down to the open beach, when my attention was attracted by a sound, which appeared to be the twittering of multitudes of little birds among the fir-trees, some of which I saw hopping about the heath at the edge of the wood. Upon entering the plantation I observed them flying in every direction from branch to branch, and running upon the bark with great agility, constantly introducing their beaks among its crevices. My curiosity being excited by the minuteness of these birds, as well as by their vast numbers, and not being able to recognize them, I shot one, with a view of ascertaining what they were, and upon picking it up I found it to be the golden-crested regulus (*Regulus cristatus*). I afterwards shot four more in different parts of the flock, and found them to be all of the same species. Their note was short and monotonous; and I observed that each time after I shot, the whole wood was quite silent for some minutes, and the birds during that time were perfectly still, after which they recommenced their twittering cry and active movements. I could not form any accurate estimate of their numbers, but I am sure I am far within bounds when I say that there must have been several hundreds of them in the small part of the wood over which I walked: as I only examined a small portion of the plantation, not penetrating it more than two or three hundred yards, where I still heard and saw them on every side, their numbers most probably were very great indeed. Mr. Yarrell quotes a passage from Selby, in which a somewhat similar instance is recorded, but in that case the birds appeared exhausted, as by a long flight, whereas those that I saw were vigorous and active.—*S. J. A. Salter; King's College, London, January 17, 1848.*

Mule between Cirl Bunting (Emberiza cirrus) and Canary.—On the 27th of July, last year, a nest of the cirl bunting, containing four young birds, was discovered in a low bushy thorn, in a quarry near this town (Kingsbridge). One of these I procured, and for several days fed it upon soaked bread, crushed rape-seed and hard egg, upon which food it thrived exceedingly well. When feathered and enabled to feed itself, I gave it the range of my aviary, in company with several canaries and other small seed-birds. It has, from that time to the present, enjoyed uninterrupted and perfect health, and is a most sprightly and beautiful male bird. In June this year it mated with a canary of the preceding year, also reared in the same room. One young bird was reared, a lively little fellow, partaking more of the habits of the bunting than the canary, one marked characteristic of which is its habit of crushing the hemp-seed with the hard bony palate, instead of shelling it with the edges of the beak, as in the finch tribe. It is smaller than the canary, more lively and quicker in its actions, and has also always had the range of the room. This mule bird is, I believe, a hen, there being very little dark plumage under the throat or sides of the head: in other respects

the plumage is very similar to its male parent. I may here also remark that a pair of bullfinches have this year built twice in my aviary, each time selecting a quiet corner for their nests, which they constructed principally of small twigs and hay. Both broods were, however, suddenly deserted when half-fledged, in the same manner as related in two or three instances previously in the 'Zoologist.' The young birds in consequence perished from cold, before any attention could be paid to them.—*George Fox; Duncombe Street, Kingsbridge, Devon, January 4, 1848.*

Curious Habit of the Rook (*Corvus frugilegus*).—It is a curious fact, that when a rook, which is perched on a tree, caws, he elevates and spreads his tail like a fan at every caw, while if he vocalizes during flight the tail undergoes no change: of course the tail is always in action during flight, but in what way does it assist the bird in cawing while perched?—*Beverley R. Morris, A.B., M.D.; York, January 18, 1848.*

Occurrence of the Lesser Spotted Woodpecker (*Picus minor*) near *Huddersfield*.—You will be glad to hear of the existence of the lesser spotted woodpecker (*Picus minor*) in our northern latitude. I yesterday shot a fine male specimen, consorting with the commoner of the *Parinæ*. It seemed to have been driven from its usual haunts by a heavy fall of snow, which occurred a few days before. It was very tame, and allowed me to notice its movements without apparent alarm. The *Picus major* is not unfrequent in our woods, but the little woodpecker I never expected to see so far north.—*Peter Inghald; Storthes Hall, Huddersfield, January 20, 1848.*

The Cuckoo (*Cuculus canorus*) destructive to the Caterpillars of the Cabbage Butterfly (*Pontia Brassicæ*).—For two or three successive years my garden was visited by a cuckoo, and I found the source of attraction to be some gooseberry-bushes, which were laden with the caterpillars of the large white cabbage butterfly: to feast on these he came regularly twice every day, and if interrupted, alarmed or driven away, he would be seen to return. He always sung on his arrival before he began to feed, and again after feeding before he flew away. The last year of his visiting my garden he was much annoyed by a hedge-sparrow which had a nest close by: directly the cuckoo alighted and commenced his "cuckoo," out flew the hedge-sparrow off her nest, and attacked him furiously about the head: this took place several successive days, and the hedge-sparrow always succeeded in driving the cuckoo away.—*Alexander Pytts Falconer; Becton, Christchurch, February 11, 1848.*

[Mr. Yarrell says that "adult cuckoos are most partial to hairy caterpillars," and I have observed the caterpillars of the various species of Burnet moths to be ardently sought by them.—*E. N.*]

White Variety of the Swallow (*Hirundo rustica*) and *Pale Variety of the Martin* (*H. urbica*).—Mr. James Watts, surgeon, of this town, has in his possession a white swallow, shot in an adjoining parish about two years ago; also a pale fawn-coloured martin, shot at the same place the year following.—*James B. Ellman; Battel, February 11, 1848.*

Habits of the Stock Dove (*Columba Œnas*).—Although the stock dove is found in this neighbourhood in considerably less numbers than the ring dove, it is by no means a rare bird. It is smaller in size than the latter, and has a bluer cast of plumage, from which circumstances it is usually called "the little blue pigeon." Although perhaps many hundreds may be seen daily by a person repairing to our neighbouring parks, yet, notwithstanding, a bird in the open country is rather a rarity, particular seasons excepted. They seem particularly attached to gnarled oak trees, and on this account the parks of Calke and Donnington are their favourite haunts. In frosts and

long snows they become more bold, and, flocking together like ring doves, repair to turnip and cabbage fields, and it must be acknowledged are serious depredators. Owing to their light and delicate plumage, they have a very pretty appearance as they rove from field to field. On these occasions they sometimes are accompanied by rooks and starlings, but it is not often that the two pigeons are seen together. They remain the year round in considerable numbers, but towards autumn, when beech-mast and acorns are ripe, receive very considerable accessions to their numbers. The greater part of these visitors again depart in a few weeks; but it is very remarkable that they suit the time of their coming exactly to that period when wild fruits are ripe: they are therefore sooner or later, according to the state of the season. In spring they commit serious damage to clover and young seeds, taking the youngest and freshest leaves as they spring from the ground. The stock dove invariably builds in the old and weather-worn trees in our parks; at least I have never known an instance of one building beyond the outskirts of those places; neither have I ever seen it, like the ring dove, place its nest on the bough of a tree, but always in the bowels of one, either on a projecting ledge of wood or deeply in a hole, oftentimes some feet in length. They build about the third or fourth week in April, but I have generally found them in the first week in May, sitting on eggs pretty well advanced towards incubation. Eggs rather smaller than those of the ring dove, and white. The nest is composed of dead oak twigs outwardly, and lined with strips of the inner rind of the bark of trees, blades of grass dried, bits of withered fern, and a good profusion of the cast-off hair from fallow deer. The birds sit close, and will not leave the nest until the intruder is at the root of the tree, and when they find themselves detected endeavour to steal away more cautiously than the ring dove. Fine weather and a favourable season will sometimes induce the stock dove to breed very early. On April 7th, 1845, I saw a young bird shot, which, from its remarkable tameness, the tenderness of its feet and youthful appearance of the feathers, seemed to have but just left the nest. If startled while feeding, they immediately wing their way to the woods and bury themselves in seclusion. The cooing is more pleasing than musical, and yet where these birds are numerous their voices blend very harmoniously with the mellower notes of the blackbird, the wild polyglot of the song thrush, and a hundred other sweet sounds which enliven the fine old domains which they frequent.—*John Joseph Briggs; King's Newton, Melbourne, Derbyshire, January 18, 1848.*

Early Nesting of Ring Doves (*Columba Palumbus*).—In the spring of 1845 a pair of ring doves hatched very early at Roydon. I forget the exact date, but one of the young was found dead below the nest while the ground was hard with permanent frost. The winter broke up about March 15th, and this was therefore prior to that day. The other bird arrived at maturity. The nest was made in the thick branches of a *Phyllyrea*.—*H. T. Frere; Aylsham, 1847.*

Anecdote of a Turtle Dove (*Turtur migratorius*).—In August, 1846, an adult bird of this species came and fed with the pigeons at my father's, Rear-Admiral H. G. Morris, at Beverley. This it continued to do for several weeks, and from never being disturbed became tolerably tame. It continued to feed with the pigeons till the cold weather arrived, in October, when, on one or two occasions, it took refuge at night in the pigeon-boxes: fearing the cold might be too severe for it, it was caught, and was kept in the kitchen all the winter; in the spring it was turned out, and after a few days disappeared, and has not been seen since. It was in most beautiful plumage when caught, and by the end of winter got very tame. I do not think it was one that

had escaped ; it had a different look to any tame ones I have ever seen, and the gardener said he saw two of them in the garden at first. It was after one of these disappeared that my friend took up with the pigeons ; he was always master in any little skirmish which took place occasionally, but still they seemed to get on very well together. It appears to be a rare bird so far north as Yorkshire, but has occasionally been met with even in Scotland.—*Beverley R. Morris, A.B., M.D. ; York, January 18, 1848.*

Extremely large Red Grouse (*Lagopus Scoticus*).—I have to-day seen what may be termed a giant of the above species ; it weighed thirty ounces (the average weight is stated to be about twenty ounces) : the heaviest I have ever heard of before was twenty-six ounces. It was shot above the Golynos Wood, about a mile from the town.—*James Bladon ; Pont-y-Pool, January 18, 1848.*

Occurrence of the Collared Pratincole (*Glareola Pratincola*) near Scarborough.—A fine specimen of the collared pratincole was killed, when in company with a flock of dotterels, in May, 1844, on Staxten Wold, five miles from Scarborough. It is in the possession of Mr. Peter Hawke. —*W. M. E. Milner ; Nunappleton, Tadcaster, February 5, 1848.*

Great Plover (*Edicnemus crepitans*) wintering in Cornwall.—In my letter to you of the 31st of December, 1844 (*Zool.* 876), I referred to the occurrence of the great or Norfolk plover in this neighbourhood, on the 24th then instant ; and in reference to the general supposition that this species leaves us in the autumn, I mentioned, that of the several examples which had been captured in the Land's End district, I knew of none that were so obtained except in the winter months. Two more instances of its occurrence have come under my notice this season, one in the third week of January last, and another in the present week ; the first at the Land's End, and the second near Falmouth.—*Edward Hearle Rodd ; Penzance, February 5, 1848.*

Peewit (*Vanellus cristatus*) destructive to the Wireworm.—Among birds useful to the farmer the peewit ought certainly to be included : the gizzard of one which I examined last spring was completely crammed with the destructive wireworm.—*Joseph Poole ; Killiane, Wexford.*

Occurrence of the Bittern (*Botaurus stellaris*) at Battel.—A fine specimen of the common bittern was caught here about the beginning of last month. It was seen to fly into a hedge, and was so exhausted as to allow a man to capture it by seizing it by the legs.—*James B. Ellman ; Battel, February 5, 1848.*

Enquiry respecting the Migration of Plovers (*Charadrius pluvialis* and *cinereus*).—Do plovers, gray or golden, migrate ? The question was new to me, and occasioned by a conversation with a resident on our south coast, who was kind enough to write his observations as follow : “ On Friday last, January 28th, 1848, I witnessed a continued flight of plovers (gray or golden) at Ballymacon, a place between Dunmore and Tramore, in the county of Waterford, across the sea : they commenced early in the morning, and continued till late in the evening. I enquired of parties living on the spot if this was a rare occurrence, and ascertained it was not. Query, do those birds migrate, and to where ? ” The course of flight was towards the Spanish coast. Some of the readers of the ‘*Zoologist*’ may probably be able to throw light on the subject.—*James Clibborn ; Waterford, 2nd mo. 11th, 1848.*

Woodcocks (*Scolopax rusticola*) drowned in crossing the Channel.—Some years ago, a few miles from the Land's End, the sea was strewn with hundreds of woodcocks : it is probable that they were exhausted by their long flight, and hundreds seem to have

fallen together into the sea: some of them were taken up, and found to be perfectly fresh.—*Alex. P. Falconer; Becton, Christchurch, February 11, 1848.*

Enquiry respecting the Egg of the Greenshank.—Your correspondent Mr. Milner, in his interesting observations on the birds of Sutherlandshire and Ross-shire (Zool. 2014), mentions the capture of a greenshank, from which was taken a perfect egg. As there has been some confusion about the egg of this bird, an accurate description and (if it is not incompatible with the plan of the 'Zoologist') a coloured lithotint drawing of the specimen thus obtained would be of great interest to such of your readers as are interested in the oological branch of the science of ornithology.—*William R. Fisher; February 1, 1848.*

[Mr. Milner will much oblige me by sending a description and drawing.—*E. N.*]

Occurrence of the White-fronted Goose (Anser albifrons) at Waterford.—A couple of wild geese were shot in this neighbourhood during the late severe weather, which on close inspection proved to be the white-fronted species, which is very rare here.—*James Clibborn; Waterford, 2nd mo. 11th, 1848.*

Account of a Hooper or Wild Swan (Cygnus ferus), nearly Seven Years in the possession of Rear-Admiral Webley Parry.—The winter of 1829-30 was remarkably severe, and especially so for South Wales, where the climate is generally mild and humid. There had been numerous flocks of wild geese and other northern birds, including the hooper or wild swan, on the river Tivy and its tributary streams: a pair of these birds were shot at and secured by the Rev. Samuel B. Shirreff, of Stradmore, Cardiganshire, whose residence was on the banks of that river. The male bird was merely wounded in the pinion; the female unfortunately too severely so to survive. Mr. Shirreff presented the other to my father, the late Rear-Admiral Webley Parry, of Noyadd Trefann, in the same county, in the hope that he might be sufficiently tamed to put on a piece of ornamental water near the house. The extreme wildness and fierceness of this bird, if approached, was remarkable, flying at every person who came near his domicile. We placed him in a small yard, with an open shed for him to retire to. It was many days before we could induce him to eat anything: as we were quite ignorant of his natural food we feared he would be starved to death, but fortunately he began to eat sea biscuit soaked in water, which he continued to live upon for some months. After being kept in this place for more than two months, and being as we thought tolerably tame, we put him on the piece of water before named, but no sooner was he on his native element than all his natural wildness seemed to return: he made his way down to a stream which ran into the Tivy, on which river he was caught, making his way towards the sea, and brought back again. Shortly after this, an accident happening to the embankment, the piece of water became dry, and 'Dan,' as he was called, was brought up to the house, and had to content himself in the circumscribed limits of the stable and poultry yards, together with the farm-yard pond: from the number of people constantly passing and repassing there, and his long sojourn, he became *excessively* tame, went to bed with the poultry, came when called, would follow us about, and knew his way around the premises as well as the dogs. After a while he returned to his old quarters, and from that time until his death never but once attempted to escape, though he would occasionally take a flight round the water and alight again: at the time alluded to he would doubtlessly have returned, but in his flight he alighted at a farm not far from Noyadd, when he was immediately caught and shut up, and notice sent to us of his capture. I went to fetch him, knowing he would follow me, and on my way saw him being driven home by a boy; but

no sooner did he catch sight of me, than he commenced half running half flying towards me, making that remarkable trumpet-sound he was in the habit of doing when pleased, and walked the remainder of the distance by my side. He knew all the servants and labourers, never molesting them, whilst every stranger, whether gentle or simple, equestrian or pedestrian, he invariably attacked if he could, especially any ragged person: he was rather the terror of our visitors, as he would frequently, like a watch-dog, dispute the entrance with them: he knew every member of the family at a considerable distance, whether on foot or on horseback, and would frequently leave the water to come and meet us, or walk by our side talking all the time. He was lord of his own domain, and especially jealous of any animal approaching its banks, generally taking the trouble to swim from the furthest end to drive them away: he was so well known by cows and horses that they generally decamped on his approach. In the spring of the year he required little or no feeding, finding sufficient sustenance on the tadpoles and other water animals abundant at that season; he would eat any kind of grain, and was particularly fond of bread, which he would eat out of our hands: he was as sociable as a dog and nearly as attached: whenever the entrance-gate was left open he would make his way up to the house; he always found out which room we were sitting in, and would call under the windows and peep in, and would not be satisfied without having something given to him; he would then lie down under them, seemingly satisfied if he could be near us. In the summer time, when the doors were open, he would frequently walk into the house, and even round the breakfast-table. Often when my mother was amusing herself at her flower-beds, he would see her, come up from the water, wait at the gate to be let in, and then come up and lie down close to her. Never so happy as when near us, he would sit under the windows or on the steps for hours if allowed, and each year increased his attachment and sagacity. After being with us upwards of six years, to our great distress—on coming down to breakfast one morning—we discovered poor Dan standing upon the steps of the front door, with his head and neck covered with blood, the skin under his lower mandible being torn from the bone and hanging down, as was his tongue, from having nothing to support it. The first thing we thought of was to sew the skin on again, in the hope of its adhering to the bone, but neither this or other endeavours to effect a cure succeeded, and the poor bird was in danger of being starved to death, as he had not the power of swallowing, even if he got the food into his mouth, having no use of his tongue. We were very loath to sign his death-warrant, and yet could think of no means of saving him, when one of the servants proposed the carpenter's making a wooden bill for him: we acted on the suggestion, and had one made with holes drilled in it, and corresponding ones through the horny substance of his mandible, and fastened it on with wire: this contrivance answered admirably; he was able to eat as usual, and began to recover his good looks, but nothing would induce him, from the time of his accident, to remain on the water at night; he always came up to the house towards evening to go to rest, and was most persevering in his endeavours to obtain an entrance into his bed-place, and if he failed one way he would try another; occasionally he would call under our sitting-room windows to be let in: in the morning he quietly marched down to the water quite contentedly. What caused the accident we could never discover, and can only suppose it to have been done by a stoat or polecat, as he had been seen more than once attacking the former, which were very numerous. The wooden bill answered remarkably well for two or three months, when the wire by which it was fastened became corroded, and it dropped off: it had unfor-

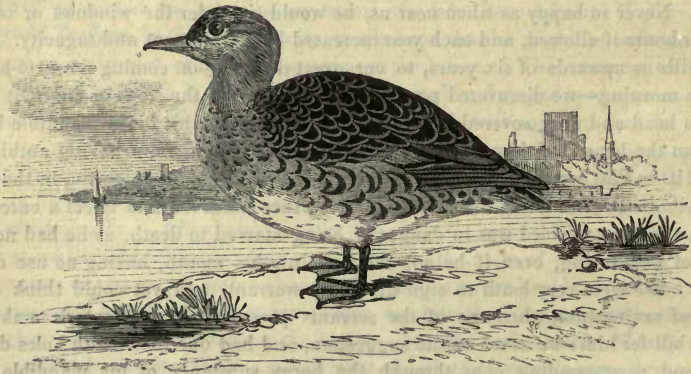
tunately been secured with brass or steel wire, instead of gold or silver: had it been done with either of the latter, in all probability poor Dan might yet have been alive, if not to *tell* his tale to have *shown* his wonderful cure; but as it was we did not like putting him again to the pain of drilling fresh holes in his mandible, as the old ones were worn through; and though we kept him many days, in hopes that he might get accustomed to the loss of his false bill, and be able to feed himself, we found him totally unable to do so: as he was getting weaker and weaker, from want of sustenance, we were most reluctantly obliged to destroy this attached and sagacious creature, having had him nearly seven years. On measuring him after his death we found him to be—

	ft.	in.
From wing to wing	8	0
From tip of the tail to tip of the bill	4	10
Round the body (but when in good condition, as previous to his accident, he must have measured far more)	2	7

—*Ellen Webley Parry; Treforgan, near Cardigan, December 22, 1847.*

Occurrence of Bewick's Swan (Cygnus Bewickii) in Wexford Harbour.—On the 1st of 2nd month, 1844, I had an opportunity of examining a fresh specimen of this bird, obtained in our harbour. There were three or four of them in company.—*Joseph Poole; Killiane, Wexford.*

Note on the Bimaculated Duck (Anas glocitans).—I beg to send you a drawing on the block, of the female bimaculated duck which came into the possession of Mr. Tomes



Female Bimaculated Duck (*Anas glocitans*).

at the beginning of last year, and of which a description, with some observations by him, will be found in the 'Zoologist' (Zool. 1698). The evidence in favour of and against the supposed hybridism of this duck has been so accurately stated by Mr. Tomes, that it is unnecessary to add anything upon this subject. I may, however, state my conviction that it is a distinct species. It should be also noticed, with reference to Mr. Selby's description of the colour of the legs of the bimaculated duck, which he states to be orange, that in the specimen in question, the bill and legs precisely resembled in colour those of the common teal, being of a bluish gray.—*William R. Fisher; Cambridge, February 3, 1848.*

Enquiry respecting the Characters which distinguish the Young of the Black-backed Gull (Larus fuscus) from the Young of the Glaucous Gull (L. glaucus).—I shall feel much obliged to any of the readers of the 'Zoologist' who will point out a difference whereby the young of the great black-backed gull may be distinguished from the young of the glaucous gull. On examining a young gull, 27½ inches in length, and comparing it carefully with the descriptions in Yarrell and Gould, I am totally unable to decide to which of these two species it should be referred: indeed I may say that in the adult birds I can find no difference but that of colour.—*D. C. Burlingham ; Lynn, 1st mo. 28th, 1848.*

Occurrence of the Red-throated Diver (Colymbus septentrionalis) at Worcester.—Since my last note, dated December 15th, 1847 (Zool. 1969), I am informed by a gentleman, in whose accuracy I have entire confidence, that two more specimens of the red-throated diver have been procured in the Severn, in this immediate locality.—*W. W. Cooper ; Claines, near Worcester, February 8, 1848.*

Occurrence of the Great Shearwater (Puffinus Anglorum) near Robin Hood's Bay.—Through the attention of Mr. Graham, of York, I have been enabled to procure a very fine specimen of the great shearwater, which was taken alive in a fishing-net, near Robin Hood's Bay, in this county. It fell into the hands of a bird-stuffer at Pickering, of whom Mr. Graham purchased it.—*W. M. E. Milner ; Nunappleton, Tadcaster, February 5, 1848.*

Notice of Ornithological Occurrences in Norfolk, for January, 1848.—Several more specimens of the waxwing have been taken during this month, especially towards the latter part of it, and chiefly in the vicinity of the coast. An adult male goosander occurred at Yarmouth early in this month, for a notice of which we are indebted to W. F. Wratlaw Bird, Esq. An adult male of the black-throated diver, in winter plumage, was shot about the middle of the month, in the river Wensum, at Taverham, which, being nearly twenty miles in a straight line from the sea, is rather an inland locality for this species. The occurrence of a pair of barnacle geese at Salt-house, and the unusually early appearance of the red-necked grebe at Surlingham, on the 26th instant, may also be mentioned. A white variety of the blue titmouse has been observed at Northrepps, in company with other individuals of the usual colour: It is not very common, we believe, for this species to be affected by such variations.—*J. H. Gurney, William R. Fisher ; January, 1848.*

Frog at a great Elevation in Inverness-shire.—I found an adult specimen of the frog (*Rana temporaria*), at the elevation of 2600 feet, on Mealfourvenie; and near the same spot a numerous progeny of tadpoles, in some black pools or tarns. Have these reptiles ever been found at a greater elevation?—*Archibald Hepburn ; Whittingham, 1847.*

Snake in the Hole of a Sand Martin.—Our gamekeeper's boy was told to procure some sand martin's eggs for my brother's collection. He put his hand into a hole, and a large snake crawled out; it had probably gone there to feed on the young birds. I have seen one of these snakes when killed contain two frogs, the uppermost of which

was still alive, and I hope was too wise again to put himself in the way of being swallowed.—*H. T. Frere ; Aylsham.*

Capture of a Snake in a Mole-trap.—About three years ago my mole-catcher brought me a snake, upwards of thirty inches long, which he had taken in one of his common wooden traps. The situation where it was caught was at the bottom of the park, by the river-side (the Wansbeck), where water-rats considerably abound, and there is no doubt that the snake had been pursuing the rat in his underground run when caught. The mole-catcher, who was a very old man, told me he had heard of a similar circumstance, but had never previously in his practice met with the like occurrence. The snake was caught about three inches from the head. Until this animal was so caught, it had not been suspected that water-rats had enemies of this description.—*J. Cookson ; Meldon Park, near Morpeth, Northumberland, February 7, 1848.*

The Great Sea-Serpent.—“ I, the undersigned, Joseph Woodward, captain of the Adamant schooner, of Hingham, being on my route from Penobscot to Hingham, steering W.N.W., and being about ten leagues from the coast, perceived, last Sunday, at 2 p. m., something on the surface of the water, which seemed to me to be of the size of a large boat. Supposing that it might be part of a wreck of a ship, I approached it, but when I was within a few yards of it, it appeared, to my great surprise, and that of my whole crew, that it was a monstrous serpent. When I approached nearer it coiled itself up, instantly uncoiling itself again, and withdrew with extreme rapidity. On my approaching again it coiled itself up a second time, and placed itself at the distance of 60 feet at the most from the bow of the ship. I had one of my guns loaded with a cannon-ball and musket-bullets. I fired at the head of the monster ; my crew and myself distinctly heard the ball and bullets strike against his body, from which they rebounded as if they had struck against a rock. The serpent shook his head and tail in an extraordinary manner, and advanced towards the ship with open jaws. I had caused the cannon to be reloaded, and pointed it at his throat ; but he had come so near that all the crew were seized with terror, and we thought only of getting out of his way : he almost touched the vessel, and had not I tacked as I did he would certainly have come on board. He dived ; but in a moment we saw him appear again, with his head on one side of the vessel and his tail on the other, as if he was going to lift us up and upset us. However, we did not feel any shock. He remained five hours near us, only going backward and forward. The fears with which he at first inspired us having subsided, we were able to examine him attentively. I estimate that his length is at least twice that of my schooner, that is to say, 130 feet ; his head is full 12 or 14 ; the diameter of the body, below the neck, is not less than 6 feet ; the size of the head is in proportion to that of the body. He is of a blackish colour ; his ear-holes are about 12 feet from the extremity of his head. In short, the whole has a terrible look. When he coils himself up, he places his tail in such a manner that it aids him in darting forward with great force : he moves in all directions with the greatest facility and astonishing rapidity.”

[The foregoing statement was formally signed and sworn to at Hingham, by Captain Woodward, on the 12th of May.—*E. N.*]

Extraordinary Habit of the Shanny or Shan (Blennius Pholis).—“The little fish which forms the subject of these remarks is in the possession of Francis Ross, Esq., Topsham, Devon, and I had an opportunity of seeing it whilst staying with him during the summer. It has been the subject of many learned discussions, and the Royal Cork Cuvierian Society gave it the lead in their Proceedings for the season. I send you a *verbatim* copy of my relative's remark, and I doubt not it will not only prove interesting to the naturalist, but to many others.

“A specimen of this fish was brought to me on the 3rd of June. On placing it in a glass vessel of sea water, it appeared perfectly quiet for some hours, but at length became restless, and made frequent attempts to throw itself out of the water. It then occurred to me, that on a former occasion, when by the sea-side, I had a gatteruginous blenny, in a vessel with some *actinix* and *serpulæ*, which regularly passed a portion of its time on a stone; I therefore placed one in the glass. The Blennius Pholis immediately leaped on it completely out of the water. It therefore appears that these changes are necessary to its existence. On going to the front of the house, I perceived that it was near low water. Knowing that it would flow till ten o'clock that night, I watched the movements of my little captive, and as the clock struck had the gratification of seeing it plunge again into its natural element. It has now been more than five months in my possession, and has proved throughout that period a regular and correct tide-indicator. I was well aware that these fish are constantly left by the receding tide on the rocks, remaining concealed in small basins or holes, under the weed, till the returning flood: still I was not prepared to see a fish voluntarily quit the water, and pass so large a portion of its existence in a different element, and by instinct alone time its change of position so exactly. A great diversity of colours and markings have been observed by collectors to exist in the blenny: this, I have ascertained, is occasioned by the situation in which they are taken. Whilst in the water the colours are less strongly marked: the fish is then a pale yellowish brown, with the blotches indistinct; but after being a short time exposed to, and inhaling atmospheric air, the colour changes to a deeper brown, and the markings become nearly black, with a regular series of white spots above and following the course of the lateral line. I have noticed that it has a power of altering its position on the stone with great facility, by means of its pectoral and ventral fins. At times it reclines on its side; at others it is perfectly erect, resting on its broad pectorals, and turning its head from side to side. The specimen is small, being about $3\frac{1}{2}$ inches in length: it will take crumbs of bread and small earth-worms, two or three a day being sufficient: it continues in good health, and has become so familiar as to take its food from my hand, and if he is not attended to will dash the water about to let me know he is on the look out for his bit of meat or rice.

“N. B. Blennius Pholis of Linneus, Cuvier and others; order Acanthopterygii; family Gobiadæ or Gobies; generally small, of little or no value as food, found on most of the rocky coasts of our island.”—*Henry Greatwood; Usk, October 11, 1847, (extracted from the 'Monmouthshire Merlin.'*)

Voracity of the Trout.—An article in the ‘Zoologist’ (Zool. 1649), on the habits of the trout in Lake Huron, reminds me of the habits of a trout in a small basin in my garden, in which I keep a few gold and silver fish. Some years since I had about half a dozen of these fish in the basin, about two or three inches long. My boys had caught some trout in the brook, and must needs turn them into the basin with the gold-fish. For about a week matters went on very peaceably; at last one gold-fish

was missing, then another; at length one day a little boy came running to tell me that the large trout had got a gold-fish in his mouth, and had swallowed all but the tail. I went and found it too true, and Master Trout was immediately condemned to death. After this, being curious to see how the trout captured his prey, I procured another, about $\frac{1}{2}$ lb. weight, and put him into the same basin, where he soon became tame and familiar. We fed him with minnows, and it was very interesting to watch his manœuvres. When a minnow was thrown in, he would immediately ascend from his usual station at the bottom of the basin nearly to the top, hover over his prey like a hawk for a few seconds, and then dart down with unerring aim, invariably seizing the minnow by the head; and, in my humble opinion, for this very natural reason, that it could not well swallow it tail first; at least it would stand a good chance of being choked by the expanded tail and fins.

Disease in Fish: Abundance of Fish in Norfolk.—I have seen lately, in the Bure, at Aylsham, several fish affected with a kind of leprosy. Large blotches appear on the body, apparently destroying the scales; the body of one was nearly covered. The fish, roach and dace, were very sluggish and solitary, not associating in the shoals of sound fish. In proof of the quantity of coarse fish in our Norfolk rivers, I may mention that on one occasion I helped to draw a net containing about 25 stone, above 700 in number, of roach and dace, with a few pike and perch. This was in the Wave-ney, near Harleston, and one of the party was my friend Mr. Wollaston.—*H. T. Frere.*

On the Method of attracting Lepidoptera by Light.—Having been asked by many entomologists how I conduct my operations for attracting by light, I have thought that a few words on the subject in your pages would not be unacceptable to the majority of your entomological readers. My attracting apparatus consists of three gas-lights, with fifteen-hole argand burners. One of these is affixed to the outside of a balcony, at an altitude of twenty feet from the ground, and protected by a lantern (somewhat like a street gas-lamp), which has a reflector at the back: in the room which opens on to this balcony is another light, which is kept within about two inches of the window; this has also a reflector behind it: the third is in the room below the balcony. I consider it very essential that there should be a light outside the building, since one inside a room has but a confined sphere of action compared with one completely outside. The outer light attracts the moths to the spot, and then the inner ones attract them into the house; and great numbers thus get caught without the slightest trouble on the part of the captor. I should also mention that my balcony is roofed, so that all insects passing the first light are retained at least for a time, and keep crawling up and down under the roof of the balcony, which is sometimes a perfect mass of insects, so that which to catch first is a matter of great perplexity. The locality in which I am situated is not what one would consider a very good one: the nearest wood in the direction of my light is that on Shooter's Hill, at least three miles distant, Dulwich Wood being about the same distance in the opposite direction. There is a great deal of hedge-row timber in the neighborhood, principally elms, and a few oaks and willows: birches and firs are scarce. There is no heather nearer than Shooter's Hill; yet I am quite satisfied that many insects I have taken have

come from Shooter's Hill, such as *Euthemonia Russula*, *Scotophila porphyrea* and *Aplota Robertsonella*. It is impossible to conjecture what novelties might not turn up if this plan were tried in some very good locality.—*H. T. Stainton*; *Mountsfield, Lewisham, January 20, 1848.*

Plants attractive to Lepidoptera.—I believe that the attractive properties of the common traveller's joy (*Clematis Vitalba*) have not hitherto been noticed in the 'Zoologist.' This plant grows in profusion on Durdham Downs, and during the past autumn I found that it was visited by numbers of moths. The following species were among my captures: *Lithosia griseola*, *Cidaria olivaria*, *Charissa dilucidaria*, *Scopula asinalis* and *hyalinalis*, &c., and *Segetia xanthographa* literally swarmed round it. The wild thyme is also frequented by many small species, as *Orthotania caricana*, *Apheloesia cygnipennella*, &c., but it is an especial favourite with *Ennychia anguinialis* and *cingulata*, and all the species of *Pyrausta*, which hover over it in the sunshine, darting about with the greatest rapidity, but if a cloud overshadows the sky they all instantly disappear; many may be then found at rest on the flowers of the thyme and other low herbs.—*P. H. Vaughan*; *Redland, near Bristol, December 31, 1847.*

Capture of Dasycampa rubiginea, &c., at Ivy Bloom, near Bristol, in 1847.—The following are my best captures at the ivy blossoms for this year: most of the common autumnal species were very abundant.

Orthosia lunosa. Several, September 27 to 30.

Xylina lambda. Four, October 1 to 25.

Agrotis saucia. Two, October 2 to 5.

Xanthia citrigo. Five, October 6 to 20.

Xylina semibrunnea. Several, October 4 to 21.

Xylina petrificata. Several, October 11 to 29.

Calocampa exoleta. Several, October 15.

Scopula ferrugalis. One, November 1.

Dasycampa rubiginea. Two on the 29th of October, and two on the 3rd of November, at Henbury.

I also took one *X. petrificata*, and many other commoner insects, off yew berries.—*Id.*

Capture of Lepidoptera in Lancashire, &c., in 1847.—I beg to hand you a short list of some of my best captures during the past season.

Cherocampa Porcellus. Not rare, at Liscard, in June.

Hadena Cucubali and *capsincola.* Liscard, in June.

Miana literosa. Not uncommon, at New Brighton, in July.

Agrotis valligera and *cursoria.* Not uncommon, at New Brighton, in July and August.

Graphiphora depuncta. In Barron Wood, Cumberland.

Charæas nigra. In Barron Wood, Cumberland, in September.

Charæas cespitis. At New Brighton, in August.

Actebia præcox. At New Brighton, on the 10th of August.—*C. S. Gregson*; *Liverpool.*

Capture of Lepidoptera at Battel, Sussex.

Acherontia Atropos. October, in a house.

Sphinx Convolvuli. September, flying over petunias.

Cherocampa Elpenor. June, flying in garden.

- Zeuzera Æsculi*. July, on fagot stack.
Notodonta ziczac. July, flying among willows.
Lophopteryx camelina. July, flying among willows.
Drymonia dodonea. June, on palings.
Gastropacha quercifolia. June, flying.
Triphæna fimbria. July, at sugar.
Agrotis suffusa. August, at sugar.
Polia tinctoria and *herbida*. June, at sugar.
Acronycta Ligustri. June, at sugar.
Thyatira derasa and *batis*. July, at sugar.
Tethea flavicornis. April, on birch twigs.
Xanthia aurago. September, at sugar and on hops.
Xanthia croceago. April, on willows; September, at sugar and on hops.
Gortyna micacea. June, at sugar.
Abrostola triplasia. June, at sugar.
Pericallia syringaria. July, flying.
Emmelesia decolorata and *herbaria*. June, by beating.
Emmelesia heparata. July, flying.
Minoa chærophyllata. July, flying.
Platypteryx lacertinaria. July, flying.
Platypteryx lacertinaria var. *cultraria*. July, flying.
Cilix compressa. June, flying.
Paracolax nemoralis. June, by beating.

The above is a list of some of the Lepidoptera which I have met with in this immediate neighbourhood during the course of the present year. I have not been long acquainted with the locality, but I have every reason to believe that diligent entomologists would be amply repaid for their researches into its natural productions. I may add that there are nearly 4500 acres of woodland in this parish alone, where I believe the net of the entomologist has *never* been: how far it is worth the attention of entomologists the foregoing list will in some measure testify.—*James B. Ellman; Battel, October 22, 1847.*

Occurrence of Colias Edusa near Liverpool.—Two specimens of *Colias Edusa* have been captured here this season; one by a Mr. Canty, taken at New Brighton, Cheshire; and the other a fine male, captured by my foreman in Pegue Lane, near my residence. The above are the only specimens known to have occurred within thirty miles of Liverpool.—*C. S. Gregson; Rose Bank, Fletcher Place, Edge Lane, Liverpool, October 24, 1847.*

Capture of Vanessa Antiopa at Bishop's Auckland.—I have in my cabinet two perfect specimens of *Vanessa Antiopa*, both taken in September last near this place; one in the Bishop of Durham's garden, at Bishop's Auckland Castle; the other at Tudloe, about five miles to the north-east.—*Joseph Duff; Bishop's Auckland, county of Durham, February 17, 1848.*

Capture of Vanessa Antiopa at Ponder's End, Enfield.—Early in September last (being myself absent from home at the time), my wife observed what she at first considered to be a purple emperor flying in the garden: her first impulse was to rush into the house for my net, and after a chase of nearly three hours, from its flying into the neighbouring gardens, was rewarded for her perseverance by securing it. Upon looking over my collection, and not finding a corresponding specimen, she did not, as

you may imagine, plume herself a little upon her good fortune and adroitness. Upon my return I was much gratified at finding it to be a capital specimen of *Vanessa Antiopa*, which had no doubt been attracted to the spot by some willows which grew at the bottom of the garden. From observations published in a former number of the 'Zoologist,' I find that prior to the years 1814 or 1815 this species had not been seen for near forty years. It doubtless is one of those insects which, like many others, from some yet undiscovered cause, appears in greater profusion at certain intervals of time; but may not the capturing of so many specimens as have been recorded of late in your invaluable journal be in some measure accounted for by the increased cultivation of that delightful science, entomology? As a proof of this, in some years I have taken *Colias Edusa* and *Hyale* in the greatest profusion, but by diligently seeking in the proper locality never remember to have failed in meeting with two or three specimens annually.—*William Curtis; Ponder's End, Enfield, Middlesex, February 8, 1848.*

Capture of Deilephila lineata at Hale, Lancashire.—I fortunately met with this fine insect in the possession of a boy, who found it sitting on a clod of earth, whilst ploughing last spring, and succeeded in obtaining it.—*C. S. Gregson; Rose Bank, Fletcher Place, Edge Lane, near Liverpool.*

Capture of Graphiphora Pyrophila near Liverpool.—I took this rare insect hovering above thistles, outside my kitchen garden, on the 15th of August.—*Id.*

Difficulty of breeding Plusia Iota.—Mr. Curtis, in his note on the difficulty of rearing *Plusia Iota* from the larva (*Zool.* 1986), appears to ascribe the failure to a parasitic fly; and that it was so in the particular case to which he refers there can be no doubt, but it cannot be admitted as a *general* solution of the difficulty. For the last five or six years I have found larvæ of this insect: in 1846 I could not have taken less than thirty of them; in other years six or eight; last year the number was still less; but I have never been able to breed a single moth. Now, in the first instance, it is contrary to experience to suppose *all* of these were *stung*; and in the next place, if they had been so the fact could have scarcely escaped detection, as the larvæ are nearly smooth and of a clear light colour; *comparatively* speaking I have observed very few so infested. But it may be objected that, if I never bred the moth, how do I know that the larvæ were those of *Iota*? a fact which I did not ascertain until last summer, though I had before suspected it. The form of the larvæ led me to conclude they must be *Plusiæ*, and the only species of that genus which I have ever met with here are *Iota* (very sparingly), *percontationis*, *Gamma* and *chrysis*: the last three I have bred from larvæ differing from those of which I now write, and therefore I conjectured they must be *Iota*, though I could not be certain. Finding that every attempt to obtain the perfect insect from these larvæ failed, I next endeavoured to procure *eggs* of *Iota*, which I did in 1846: these hatched early in July, and the young larvæ ceased to feed about the end of August. I had also a much more numerous brood of *percontationis*, which discontinued to feed about the same time. From some cause or other (probably the very cold ungenial spring of 1847) most of my young larvæ perished: only two of *percontationis* and seven of *Iota* survived, showing (as far as a single instance can) that *Iota* is the more hardy of the two. *Percontationis* changed to pupæ towards the end of May, and the perfect insects appeared about the middle of June. *Iota* fed equally well, and appeared quite as healthy as *Percontationis* until after the last *moult*, when, though they fed as freely as before, they began to assume the appearance of my hitherto-unknown larvæ: the segments became more tumid, and their hitherto beautiful green changed first to a whitish, and afterwards to

a sickly-looking cream colour, proving incontestably that my conjectures were right. The underside of the larvæ and irregular blotches between the segments still remained green. All these perished in a manner similar to those I had found in a natural state; some, suspending themselves by their anal feet, soon turned almost black, the intestines seemed to decompose, and they hung like little bags of fluid; the rest spun slight silken webs among the leaves of their food, as the other species do, and then turned black and flaccid; not one changed to a pupa, and, as I always discarded such as I observed to be *stung*, I never bred a parasite of any kind. Now, when we consider that these larvæ eat freely, and show no impatience of confinement, we must I think admit that it is extraordinary that none of them become pupæ. I rarely meet with more than two or three of the perfect insect, and these seldom fit for the cabinet: last year I took but one (a worn female), which however deposited a few eggs: some of the young larvæ from these are now in the hands of one whose untiring zeal and unwearied exertions to place our Lepidoptera on a more satisfactory footing have gained him much *practical* knowledge of larvæ, and the manner of treating them: after this I need scarcely mention the name of Mr. Henry Doubleday. I do hope, if the larvæ survive the winter, his superior knowledge and greater conveniences will enable him to breed *Iota*, and thus effect what I have hitherto failed to accomplish. If any of the numerous contributors to the 'Zoologist' has ever reared *Iota* from the larva, and will communicate the *modus operandi*, he will very much oblige a less successful aspirant.—*William Turner; Uppingham, January 13, 1848.*

Note on Aspilates purpuraria.—When I was in Denmark last summer, on an entomological excursion, I was amused with the rapid movements of a little fellow flitting over the flowers of the bird's-foot trefoil (*Lotus corniculatus*), in company with the common skippers and the Alexis butterflies. I succeeded in taking a pair or two, and on my return to England I find that it is *Aspilates purpuraria*, a reputed British species. Like others of the genus, they seem partial to the chalk, and very local in their distribution. They were flying in the noon-day sunshine, with all the alertness of their companions. I never saw them alight but on the trefoil, and, when at rest, they were so wary that on the slightest approach of my shadow away they went to the next flower. The place where I saw them was on the side of a river bordering on an oak wood, on one side of the Glückstadt line of rails; for on going to the opposite side, though the same flowers grew there, not one was to be seen. I first noticed the moth on the 29th of June.—*Peter Inchbald; Storthes Hall, Huddersfield, January 6, 1848.*

Description of Ehippiphora turbidana (Tr. sup.), a new British Moth of the family Tortricidæ.—Expansion of wings 10 or 11 lines. Anterior



Ehippiphora turbidana.
a. Male. b. Female.

wings dingy olivaceous brown, darkish towards the inferior edge, with two broad fasciæ of a lighter tint, the first elbowed outwards, forming an acute point on its outer edge and along with the second, which springs from the anal angle, nearly enclosing an oval space in the dark ground-colour of the wing; between the second fascia and the apex are a few whitish lines arranged in pairs. Hind wings dusky olivaceous; cilia whitish. Female more decidedly olivaceous, inclining to fulvous in some parts, with the fasciæ straighter, and slightly varied with the plumbeous scales. I obtained a single male of this insect on the 13th of July, 1845, among the

leaves of the burdock (*Arctium lappa*), on a piece of waste ground in this neighbour-

hood. My friend Mr. Allis, of York, has a fine female, taken some six or eight years ago by a collector near Halifax. These two are I believe the only British specimens which have as yet occurred, though I understand it is a common German species. Mr. Allis has kindly sent me his specimen to figure and describe. I am also indebted to the kindness of Mr. Henry Doubleday for ascertaining the name.—*R. F. Logan*; *Duddingstone, near Edinburgh, December 31, 1847.*

Description of Phycita interpunctella, Hubner, a new British Species of the Family Tineidæ.—Size of elutella, which it much resembles; but the anterior wings, from a little before the middle to the apex, are blackish-brown, with something of a reddish tinge. Mr. E. Shepherd took a specimen of this in his house last summer, which I should have been inclined to think only an extraordinary variety of elutella, but as the insect is figured in Hubner and Duponchel as distinct, I presume it is really a species. The latter gives the following description of it. “Anterior wings are above of a yellowish-white from the base to the middle, and of a red-brown on the rest of the surface. This latter part, in the centre of which is a reddish spot, is crossed by three metallic lead-coloured lines. Cilia also of this colour. Posterior wings of a shining dirty white on both sides. The head, palpi, antennæ and thorax are of a reddish-brown. The body and feet partake of the colour of the posterior wings.”—*H. T. Stainton*; *Mountsfield, Lewisham, January 28, 1848.*

Description of Chauliodus Illigerellus, Hubner, a new British Moth of the Family Tineidæ.—The genus *Chauliodus* was formed by Treitschke, and contains as yet but two species. The character which at once distinguishes this genus is the two projecting tufts of scales on the inner margin of the anterior wings. *Tinea Illigerella* is figured in Hubner, *Tinea*, N. 333, and as *Chauliodus Illigerellus* in Duponchel, vol. xi. Plate 294, f. 1. Head and thorax pale ochreous; forehead smooth; palpi dark brown; antennæ brown, annulated with ochreous; abdomen dark griseous; legs brown; tarsi annulated with ochre. Anterior wings ochreous to near the middle, then a cloudy fascia, with a red-brown spot near the inner margin; beyond this fascia is an ochreous mark, resembling an inverted Y, the space between the forks being brownish; the rest of the wing is dull brown, with a red-brown spot near the costa, beyond which is an ochreous mark, in which a dark blotch is visible; the outer margin of the wing is curiously curved, and on the inner margin are two distinct fascicles of projecting black scales; on the disk are five distinct black dots, three placed transversely near the base, and two near the middle, one on each side of the Y; cilia brown, varied with ochreous, with a distinct line of black dots near the edge, and another (interrupted about the middle) on the extreme edge. Posterior wings and cilia grayish; cilia of the hinder margin very long. Two specimens of this insect were taken by Mrs. Stainton and her sister, on the downs near Stoa's Nest, on the 31st of July, 1847. I am unable, not having caught them myself, to speak with certainty as to what plant they were beaten out of, but most probably out of the junipers, as we thrashed the junipers most assiduously for *Cochylis rutilana*, of which I was fortunate enough to obtain five. Mr. W. Shepherd also took a specimen of this insect off the junipers at the same place, the following week.—*Id.*

Descriptions of Coriscium Alaudella and C. quercetellum, two new British Moths of the Family Tineidæ.—“The genus *Coriscium* of Zeller consists of only three species, of which the transformations are not known, and which, according to M. Zeller, only differs from *Gracillaria* by having the penultimate joint of the palpi furnished beneath

with a bundle of hair. Perhaps for so slight a difference he would have done better in making it only a division in the genus *Gracillaria*."—(Dup. Cat. p. 372).

The three species alluded to in the above extract are,—*quercetellum*, *ligustrinellum* and *citrinellum*. Duponchel places his *Alaudella* in the genus *Elachista*, but it seems out of place there, and probably belongs to this genus, to which Mr. Curtis has referred it. *Citrinellum* appears in the second edition of Messrs Evans' and Hawley's Catalogue (*Gracillaria citrinella*, *Fischer*), but I believe there is no instance on record of its capture in Britain.

Coriscium Alaudella, Duponchel. "Expansion of wings $4\frac{1}{2}$ lines. Anterior wings are above of a reddish-gray, with three little transverse bands and several spots of a deep brown, bordered with whitish. The three bands are placed obliquely, equidistant from one another, between the base and the middle of the wing, and the spots occupy the remainder of its surface. The cilia reddish-gray. The underside of these wings is gray-brown. Both surfaces of the posterior wings are of a deep brown, with the cilia a shade paler. The head, thorax and antennæ are of the colour of the anterior wings. The abdomen and the legs of the colour of the posterior wings."—(Dup. vol. xi. p. 525).

Duponchel says nothing of its habits, time of appearance, &c., but that he obtained it from the 'Département du Nord.'

Coriscium quercetellum, Zeller. "Expansion of wings $3\frac{1}{2}$ lines. The anterior wings above are of an ashy-gray, dotted with blackish atoms, which by their union form several spots or irregular bands. Their extremity is bordered by a blackish arch, the outer side of which is turned towards the base of the wing. Cilia concolorous with the disk. The underside of these wings is blackish. Both surfaces of the posterior wings are of a leaden-gray, with the cilia rather paler. Antennæ very long."—(Dup. Sup. vol. iv. p. 470).

Duponchel says, "head and thorax, as well as their appendages, are of the colour of the wings," not mentioning whether he means the anterior or posterior wings. From his figure I conclude he means the anterior wings; the abdomen is more of the colour of the posterior wings. In a former number (*Zool.* 1895), Mr. Curtis records both these species as having been taken in England.—*Id.*

Note.—Since writing the above I find, from the second volume of the 'Linnæa Entomologica' (a work I would recommend to all entomologists), that *ligustrinellum* of Zeller is identical with *alaudella* of Duponchel, which latter name has priority. Zeller says of it, "This species is widely spread, but little known: it occurs in Switzerland, at Baiern, near Augsburg, where Freyer found the larvæ abundant on the privet. Mann took, so he writes me, several specimens in the neighbourhood of Vienna, in a wood near Mauer, on the Tann, in which, for aught I know (I made an excursion thither with Mann), no privet grows. A specimen which I possess was taken near Cologne, on the Rhine, on the 14th of September, on beech. Lastly, this species also occurs near Kokenhusen, in Livonia, and I have three Livonian specimens before me to make use of in the description. I can give no precise period of flight besides September. It is very probably double-brooded."

I cannot imagine Duponchel's insect to be the *quercetellum* of Zeller. It certainly but little resembles Zeller's figure, which is moreover figured in Duponchel as *Elachista Curtisella*. This insect being one of several species of doubtful location, which will be figured and described in my Monograph of the British *Argyromiges*

(next month I hope), I do not say anything further about it here.—*H. T. Stainton.*

Descriptions of Lophoptilus Staintoni and Microsetia Bedellella, two new British Moths of the Family Tineidæ.—I forward to you, at the request of some London entomologists, the following descriptions of two new insects.

Genus Lophoptilus. This genus, so named from the tufts on the wings, contains but one species. The palpi are long, ringed or spotted, slightly curved upwards, terminal joint acuminate; spiral tongue shorter than palpi; wings narrow, rounded and convoluted in repose. This genus seems to connect that of *Anacampsis* with *Lophonotus*.

Lophoptilus Staintoni. Expansion of wings 3—4 lines. Anterior wings varied with black, ochre and gray, having on the costa two dashes, in some specimens white, in others ochreous; the first a little beyond the middle, the second midway between it and the extremity of the wing; transversely opposite, on the inner margin, are two slightly elevated black tufts; a black spot is posited in the centre of the apex. Head gray; cilia dusky, margined round the apex with black. Posterior wings and cilia fuscous. Antennæ and legs ringed with white.

Microsetia Bedellella. Expansion of wings $3\frac{3}{4}$ lines. Anterior wings square, of a fawn colour, which in some specimens, especially the female, is very pale; two white lines divide the wing into three nearly equal parts. Posterior wings and cilia similar in colour. Head gray.

These two species, similar in habits, frequent the scanty herbage of Durdham Downs, flying a little above the blades of grass in the evening. I generally take them by sweeping. They have also been captured by Mr. Stainton and others, at Sanderstead, Riddlesdown, and elsewhere, in May and July.—*John Sircom, Jun.; Brislington, near Bristol, February 3, 1848.*

Descriptions of the British Species of Bees belonging to the Genus Halictus of Latreille. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

THE insects which compose this extensive genus are almost universally distributed throughout the world: many of the species indigenous to America are brilliantly metallic in colour; and although none of the British species can vie with them in that respect, still two or three partake of that brilliancy in some degree.

Many of our native species are exceedingly abundant, frequently forming colonies in favourable situations: they are partial to hard sand-banks and trodden pathways; similar to their congeners composing the genus *Andrena*: in general aspect, indeed, they closely resemble them, but are easily distinguished,—the females by the vertical incision at the apex of the abdomen, and the males by their

elongate cylindrical abdomen, and by usually having the apex of the clypeus white or yellow.

To this genus belong some of the smallest species of bees found in this country. These bees appear rather later than those belonging to the genus *Andrena*, and are found in great abundance from the middle of summer to the end of autumn; indeed I captured *H. quadrinotata* last season as late as the 31st of October. The males of some species, particularly those of *H. abdominalis*, abound during August and September.

These bees are frequently infested by various species of Strepsiptera, one of which Mr. Curtis has figured and described, in his beautiful work on British genera, under the generic name of *Halictophagus*, from its having been captured in company with the males of a species of this genus (*Halictus æratus*): indeed one of the bees captured by Mr. Dale proved to be infested by some species of Strepsiptera: this was as late as the middle of August. I have never met with any of the species of the genus *Andrena* which were Stylopized so late in the season, but have met with Halicti so infested in the month of August. I possess a female of *H. nitidiuscula*, one of the smallest of the genus, with the heads of two female Stylops protruding between the third and fourth segments of the abdomen; it indeed requires the aid of a glass to detect them: the male of this species, I should presume, must be a much smaller species than any yet discovered in this country. The smaller species of bees contain smaller females of Stylops, a fact which goes to prove that our knowledge of the number of the species of the Strepsiptera is very limited.

Upon the bodies of these bees is also found that remarkable creature, the *Pediculus Melittæ* of Kirby, which in form resembles the larva of *Meloe*, as recently shown by Mr. Newport, in his elaborate and admirable paper on that insect published in the twenty-second volume of the *Linnean Transactions*. The larva of *Meloe* is of a bright orange colour, whereas the *Pediculus Melittæ* is black; and Mr. Newport informs us it is not a larva of either *Meloe violaceus*, *proscarabæus* or *cicatricosus*; he supposes it to be the larva of some allied genus, or of some other species of *Meloe*. The *Pediculus Melittæ* is very abundant in some districts: I have found numbers on various species of the *Andrenidæ*, and they abound in the flowers which these bees frequent, in situations where only two of the species of *Meloe* named above are to be met with.

I once captured a species of *Halictus* infested with Acari, but I do not think they are very subject to such attacks. Acari appear to me

to infest *Bombi* and *Odyneri* more than any other hymenopterous insects; the former are indeed sometimes unable to fly, so numerous are these parasites found upon them; and the metathorax and femora of *Odyneri* are frequently completely covered by them.

I am not acquainted with any other parasite which infests these bees, but large numbers of them fall a prey to certain species of fossorial Hymenoptera belonging to the genus *Cerceris*. I have captured one species, *C. ornata*, conveying to her burrow specimens of *Halictus rubicundus*, *fulvocinctus* and *obovatus*: *Cerceris ornata* is very abundant in some districts, and must destroy immense numbers of *Halicti*.

It is the generally-received opinion that the species of *Sphecodes* are parasitic upon the *Halicti*. *St. Fargeau* and *Walckenaer* are both of this opinion, but I am not aware that the fact has ever been proved. I have once or twice observed a species of *Sphecodes* in the act of burrowing, and this fact leads me to doubt their parasitism. It may be possible that they were endeavouring to reopen the closed burrows of *Halicti*, but I do not know that such habit has been observed in any of the parasitic bees.

Genus.—*HALICTUS*, *Latreille*, *Walckenaer*, *St. Fargeau*, *Curtis*.

Andrena, *Fab.*, *Panz.*, *Spinola*, *Oliv.* *Hyleus*, *Fab.*, *Panz.* *Prosopis*, *Fab.* *Apis*, *Panz.*, *Rossi*, *Fourcroy*, *Schrank.* *Lasioglossum*, *Curt.* *Melitta*, *Kirby*.

Generic characters.—Head usually a little narrower than the thorax, sub-triangular; the stemmata placed in a curve on the vertex; the antennæ inserted in the middle of the face, geniculated, twelve-jointed in the females, the basal joint elongate; the tongue short, acute, and pubescent at the apex; the middle tooth emarginate; the labial palpi four-jointed, the basal joint longest, arcuate, the rest of equal length; the maxillary palpi six-jointed, the three basal joints shortest; the mandibles bidentate or notched at their apex, pubescent externally; the clypeus convex. Thorax usually ovate; wings with one marginal and three complete submarginal cells, the first about as long as the two following, the second nearly quadrate, receiving the first recurrent nervure beyond the middle, the third narrower towards the marginal, receiving the second recurrent nervure beyond the middle. Abdomen oblong-ovate, pubescent, and having at the apex a

vertical incision.* Males much smaller than the females; their antennæ elongate, thirteen-jointed, the joints subarcuate; the nose usually white or pale yellow at the apex; the mandibles long, curved and acute at their apex. Abdomen cylindrical, composed of seven segments.

Sp. 1. HALICTUS QUADRICINCTUS.

Melitta quadricincta, Kirby. *Hylæus quadricinctus*, Fab. ? male.

Apis hortensis, Fourcroy ? ? female. Not *Apis flavipes*, Panz. (Walckenaer). Not *H. nidulans*, Walckenaer.

Female.—(Length $4\frac{1}{2}$ lines). Black; the face thinly clothed with pale yellow hair; the labrum has a beard of the same colour; the antennæ piceous beneath. Thorax thickly punctured, a few ochraceous hairs thinly scattered on the disk; the sides and the metathorax laterally more thickly clothed with pubescence of the same colour; the tegulæ piceous; the wings subhyaline, the nervures testaceous; the metathorax rotundate; the legs nigro-piceous, their pubescence pale luteous; the tarsi pale rufous. Abdomen fuscous, ovate, convex, shining, minutely and closely punctured; all the segments have a white marginal fascia, the first interrupted; the apex clothed with pale ochraceous pubescence, slightly stained with red at the sides of the apical incisure.

Male.—(Length 4 lines). Black; the face clothed with white pubescence; the apex of the nose pale yellow; the mandibles very much dilated at the base. Antennæ fulvous, as long as the head and thorax; the joints subarcuate; the scape black; three or four of the basal joints fuscous above; the apical joints pellucid. Thorax closely punctured; the tegulæ testaceous; the wings hyaline; the posterior femora, excepting at the knees, and the intermediate and anterior pairs behind, nigro-piceous, otherwise of a fulvous yellow; the tarsi palest. Abdomen linear, shining, closely punctured; the segments have a white marginal fascia, the first, and sometimes also the second, interrupted; beneath, the two apical segments are concave.

* I have used the term *incision*, but in point of fact what has the appearance of an incision is merely a smooth vertical space between the pubescence which clothes the fifth segment; the sixth, which is concealed, has also a similar smooth line; the segment at its apex is produced, and forms an obtusely pointed style; the margin of the segment is fringed with hairs of the exact length of the style. What can possibly be the purpose of this curious formation I cannot conceive; it may be connected with some peculiarity in reference to the connexion of the sexes.

Mr. Kirby has quoted the male of this species, without a doubt, as the *Hylæus quadricinctus* of Fabricius, but the description of that author makes no mention of the yellow antennæ, nose, tibiæ and tarsi of our insect; and as I find that in the preceding species described by Fabricius he clearly points out such peculiarities, I think the synonyme very doubtful. Walckenaer considers this species identical with his *Halictus nidulans*, and says that he received a specimen from Latreille ticketed '*H. quadricincta*;' but his description satisfies me that he is in error: "*pedibus anoque villosis fulvis*" applies rather to *H. rubicunda*, and will not agree at all with the present species. Presuming that Mr. Kirby has correctly united the sexes, no one could I think overlook the remarkably dilated mandibles of the male. The female may be known from the same sex of every other species with which I am acquainted, by the abdomen being fuscous, and closely and rather strongly punctured from base to apex, and by its being very convex. I must protest against the practice of sinking the original name given to a species by its describer; Walckenaer has in more instances than the present done so, for he regarded his own species synonymous with Mr. Kirby's: such names must and ought to sink. The only specimens I have seen of this species are two males and one female in the Kirbyan cabinet, and one female in that of the British Museum. Mr. Kirby gives the locality of the neighbourhood of London, captured by Dr. Latham and Mr. Marsham, still I have always searched for it in vain.

Sp. 2. HALICTUS RUBICUNDUS.

Melitta rubicunda, Kirby. *Apis flavipes*, Panzer. *Apis rubicunda*, Christ.?

Female.—(Length 4—5 lines). Black; the face clothed with short, thin, pale fulvous pubescence; the labrum bearded with golden yellow; the antennæ slightly nigro-piceous at their apex beneath. Thorax, the disk thinly clothed with ferruginous pubescence, palest on the sides and on the metathorax, which is rotundate; the tegulæ ferruginous; the wings subhyaline, slightly clouded at their apical margins, the nervures testaceous; the apical joints of the anterior tarsi, the intermediate tarsi and tibiæ above, and the posterior tibiæ and tarsi entirely, fulvous, their pubescence of a golden yellow; the basal joint of the posterior tarsi has a dark stain above. Abdomen ovate, smooth and shining, having a little pale pubescence at the base; viewed laterally, the abdomen has a thin, short, black pubescence;

the margins of the segments have a narrow white fascia, the first and second frequently interrupted; beneath, the segments have a thin, pale, marginal fringe.

Male.—(Length 4—5 lines). Black; the apical margin of the clypeus, and also the labrum, yellow; the antennæ not quite so long as the head and thorax; the pubescence on the face is griseous below the base of the antennæ, at which and above it is stained with yellow. Thorax thinly clothed with pale fulvous; the tibiæ and tarsi yellow; all the tibiæ have a dark stain beneath. Abdomen linear; the first four segments have laterally a narrow white fascia on their apical margins, the fourth frequently entire; beneath the apical segments are depressed or concave.

St. Fargeau considers this species to be identical with the *Halictus nidulans* of Walckenaer, but in this I cannot agree. I feel satisfied that Walckenaer was intimately acquainted with his species, and knew the sexes to be correctly assimilated: the description of the male will not accord in prominent particulars, and that of the female is far too brief to be relied upon. The description of the *Apis flavipes* of Panzer, and also the figure, I think apply to our species. I should have adopted Panzer's name, had I not applied the same to another species,—the *Hylæus flavipes* of Fabricius. Whether our species be the *Apis rubicunda* of Christius I think very doubtful, since that author describes his insect as having reddish yellow bands on the abdomen: his description is too brief, and would agree much better with that of *H. fulvocincta*.

Sp. 3. HALICTUS FLAVIPES.

Apis flavipes, Linn., male. *Hylæus flavipes*, Fab. *Apis crocipes*, Fourcroy. *Apis tumulorum*, Linn.? *Megilla subaurata*, Fab., female. *Apis subaurata*, Panzer. *Halictus seladonius*, Latr., St. Fargeau. *Melitta seladonia*, Kirby.

Female.—(Length 3—4 lines). Bronzed green; the antennæ beneath piceous at their apex; the mandibles ferruginous at their tips. Thorax shining, closely punctured, a scratch in the centre of the dorsolum, and also a short parallel one over the tegulæ; the metathorax rounded, of a bright green, sometimes of a blue-green; the pubescence on the sides of the thorax and beneath is pale ochraceous; the tegulæ and nervures piceous; the wings iridescent; the legs nigro-piceous, their pubescence pale yellow, that on the tarsi beneath of a bright golden yellow; the apical joints of the tarsi pale ferrugi-

nous. Abdomen subovate, closely and finely punctured; the segments have a pale marginal fascia, sometimes white, the first generally interrupted; beneath rather coarsely punctured.

Male.—(Length 3—3½ lines). Brassy green, closely and finely punctured; the apical margin of the clypeus, the labrum and mandibles yellow, the latter ferruginous at their apex; the antennæ as long as the head and thorax; the joints subarcuate, fuscous above, beneath of a fulvous yellow, except the three apical joints, which are fuscous; the scape black. Thorax, a central longitudinal scratch and a short one over the tegulæ, which are piceous; the wings hyaline and iridescent; the legs of a sulphurous yellow, the femora and tibiæ being stained in parts with rufous; the claws rufous; the coxæ and trochanters nigro-piceous; the anterior pair beneath, and the intermediate and posterior at their base and apex, more or less yellow. Abdomen linear, broadest towards the apex; the base of the intermediate segments depressed, a slight griseous pubescence at the sides, and sometimes a little on the margins of the segments; beneath the margins piceous.

I have scarcely a doubt of the male of this species being the *Apis tumulorum* of Linneus, but as the two authentic specimens in the Linnean cabinet are gummed on a card, and have been pressed flat on their sides, it is difficult to determine: after a careful examination of them, I think they are identical with our insect; but as it admits of a doubt I have not changed the name. I have frequently found the sexes of this species entering the same burrows, and they are commonly found in company, frequenting the flowers of the dandelion (*Leontodon*). I think this is undoubtedly the *Apis flavipes* of Linn., and also the *Hylæus flavipes* of Fab.

Sp. 4. HALICTUS ÆRATUS.

Melitta ærata, Kirby.

Female.—(Length 2½—3 lines). Head and thorax brassy green, closely and finely punctured; antennæ black, the apical joints slightly piceous beneath; the mandibles ferruginous at their apex. Thorax shining; the metathorax truncate posteriorly; the tegulæ piceous; the wings subhyaline, splendidly iridescent; the legs black, the claws ferruginous, their pubescence griseous, that on the tarsi beneath is pale fulvous. Abdomen black, slightly tinged with æneous, smooth and shining; the margins of the segments slightly piceous; a little patch of white pubescence on the basal margin of the second segment

laterally, frequently obliterated; the margin of the fourth segment usually has a narrow white marginal fringe; beneath, the margins are thinly ciliated with pale hairs.

Male.—(Length 3 lines). Head and thorax of a bronzed green, sometimes of a blue-green, closely punctured; antennæ nearly as long as the head and thorax, fuscous above, pale fulvous beneath; the apex of the clypeus pale yellow. Thorax, the tegulæ piceous; the wings subfuscous, iridescent. Abdomen linear; the base of the two intermediate segments depressed, and having laterally a little white pubescence.

This species very closely resembles *Morio*, but is usually of a brighter green; the abdomen of *ærata* (female) has also a greenish tinge, that of *Morio* is black.

FREDERICK SMITH.

5, High Street, Newington,
February 19, 1848.

(To be continued).

Capture of Coleoptera in Scotland.—I send you a notice of a few of my coleopterous captures, in hopes that it may prove interesting to the readers of the 'Zoologist.'

Endomychus coccineus. In the month of January, while stripping the bark from some decayed willow-trees on the banks of the Esk, I found the trunks covered with a small red and black beetle: being but a beginner in the study of insects at that time, I was quite puzzled. On showing it to Mr. Hepburn, of Whittingham, however, he discovered it to be *Endomychus coccineus*. Although of frequent occurrence in England, this, as far as I can learn, is the first time it has been taken in Scotland. In this locality it is extremely abundant. I have succeeded in capturing more specimens hibernating than in summer. It is always most thickly clustered near the root of the tree, and rarely at a greater elevation than two feet, generally interspersed with *Phædon Vitellina*.

Lamprias chlorocephalus. In the same locality with the preceding insect I have taken a single specimen of *Lamprias chlorocephalus*, which appears to be very rare.

Meloe proscarabæus. I have taken three females amongst the long grass by the banks of the river.

Brosicus cephalotes. In the month of August I succeeded in capturing several specimens of *Brosicus cephalotes*, under carcasses along the beach.

Cychrus rostratus. In an old quarry, between Musselburgh and Preston-pans, *Cychrus rostratus* occurs frequently under stones: in a pond in the same quarry *Dytiscus marginalis* is very abundant.

Chrysomela polita. Rather common on willows.

Cataphagus lineatus. Very common on the nettle (*Urtica urens*) during summer.

Melolontha vulgaris. One evening in the latter end of June I captured a fine

specimen of the cockchaffer (*M. vulgaris*), on the wing; fortunately it is a very rare insect in this district.—James C. Howden; Musselburgh, November, 1847.

Notes on the Coleoptera of Northamptonshire.—I have selected the following Coleoptera from a list of about 500 species that I have taken here during the past year. By far the best locality in the neighbourhood is Harleston Firs, about two miles from Northampton, on the East Haddon Road; although Whittlebury and Salcey Forests, Plane Woods, close to Roade Station, and many others, will amply repay examination.

Leistus spinibarbis. A few specimens, under stones and in moss, in the early spring.

Pterostichus oblongo-punctatus. This local insect is not uncommon, during May and June, in a fir wood near Harleston. I found it running about in the sunshine, together with *Thanassimus formicarius*. It is one of the most active, as well as most rapacious of the Harpalidæ: its principal food seems to be the great red ant, which abounds in the same locality.

Atomaria dimidiata. Common, with other species of this genus, by sweeping in damp meadows.

Antherophagus pallens and *similis* (Curtis). Occasional specimens from flowers, in June and July.

Rhyzophagus cylindricus and *rufus.* In fir-stumps, together with *Ips ferruginea*; local, although, when found, abundant. These insects are generally to be met with on the inner side of the bark; while *Ips* is as often found with *Hylobius abietis*, feeding on the wood itself.

Attagenus Pellio. Not uncommon on the windows of old houses, in July.

Byrrhus dorsalis. A single example, with several of the common *B. pilula*, by sweeping clover, in June.

Agrilus viridis. A few specimens, from the blossoms of the wild cherry.

Aplotarsus quercus and *rufipes.* Abundant in damp meadows, in May and June.

Scirtes hemispherica. Common on water-plants, found together with several species of *Cionus*, *Baris atriplicis*, *Cleopus pulchellus*, &c.

Mecinus circulator. A single specimen from a sand-pit.

Caliodes subrufus. On oak trees, in the beginning of May, rare.

Nedys Echi. On the *Echium vulgare*. The best way of obtaining specimens of this insect is by examining carefully the leaves at the foot of the stalk: it seems to prefer this situation to the leaves or flowers of the stem itself. This is, as far as I am aware, the only insect of the genus that is capable of making a noise when alarmed: the sound, which resembles that of a *Necrophorus*, is produced by the friction of the abdomen against the base of the elytra.

Rhinonchus Castor, with *Apion Rumicis.* Common, by sweeping, in woods.

Balaninus Brassicæ. In profusion on an oak tree, in May.

Sibinia Viscariæ. I took eight specimens of this rare insect, by frequently searching one spot, in the corner of a clover-field.

Notaris bimaculatus. Among the roots of grass, in damp localities, together with *Dromius agilis* and a few specimens of *Hypolithus riparius*.

Dorytomus Tremulæ (?) In the bark of an old willow tree, not uncommon, where it was taken some years ago by Mr. Greville, who kindly pointed out to me the locality.

Gronops lunatus. Taken very sparingly, by sweeping herbage on the margin of a fir wood.

Trachyphlæus aristatus. Four specimens, from clover, in May.

Bothinoderes albidus. I have been fortunate in taking two specimens of this very rare and beautiful Curculio, from a sand-pit in Harleston Firs. The first specimen I found in June, while searching for *Pterostichus oblongo-punctatus*, among the grass and rubbish at the bottom of the pit. The second I discovered in the same locality, by pulling up and examining the hussocks of grass and heather that grew on the sides. When disturbed, it clings fast to some bit of stick, and thus is only to be found by the most patient examination. One specimen, which I kept alive for some little time, remained always motionless during the day, and only relieved the monotony of its existence by wandering slowly in the evening among the stems of grass with which it was supplied.

Apion Astragali. This insect has been taken in this neighbourhood during former seasons, by Mr. Greville (vide 'Entomologist,' p. 185, note) and Mr. F. Smith, to both of whom I am indebted for their kindness in directing me to the exact locality. I have been unable, however, with all my exertions, to meet with a single specimen: the field has since then been repeatedly ploughed up, and the locality for this rare insect, I fear, totally destroyed.

Rhynchites æquatus and *minimus*, with *Tetrops præusta*. From blossoms of the May.

Haltica fuscicornis. Not uncommon in the gardens at Castle Ashby, on the holy-oak, in company with *Apion æneum*.

Cassida equestris. Very abundant on the wild mint.

Cassida vibex, obsoleta and *sanguinolenta*. Harleston, by sweeping at the sides of the wood.

The commoner species of Coccinellidæ, especially *C. 7-punctata*, have occurred here, as in other parts of the kingdom, in the *greatest profusion*. I have been unable to detect *C. labilis* among the hundreds of *7-punctata* that I have examined.

As to the richness of this neighbourhood in other families of insects, I am unable to give detailed information, as I have confined my attention almost exclusively to Coleoptera. I may, however, mention, that specimens of *Apatura Iris* and *Sphinx Convolvuli*, and one of *Vanessa Antiopa*, have been taken here lately. *Sesia bombylififormis* appears to be far from uncommon, while Barnwell Wold, within an hour's ride by the railroad, is the well-known locality for *Polyommatus Arion*.—*Hamlet Clark*; Northampton, February 19, 1848.

Occurrence of Cillenum laterale at Liverpool.—I have taken *Cillenum laterale* in great abundance, at Liverpool, by turning over the stones on the beach above the town, in sunshine.—*C. S. Gregson*; Liverpool.

Occurrence of the Locust at Cromer.—While staying at Cromer, in Norfolk, I observed upon the cliffs no less than eight specimens of the *Gryllus migratorius*, out of which, on account of their uncommon swiftness of flight and agility in rising, I was only able to capture two, which are in my possession at present. I observed these locusts in August, 1847.—*Albert D. Michael*; 9, Red Lion Square, January 31, 1848.

Occurrence of the Locust at Bishop's Auckland.—Three specimens of the locust have been taken near this town; one on the pavement in the market-place, which seemed much exhausted; it was kept alive two days, but would eat nothing: a second

was captured in a pasture field, two miles to the south; it was very active, and was captured with difficulty; it lived about a fortnight: the third was captured on a railway bank, about nine miles to the south-east. They were all taken in August, and are of the same species, certainly the *Gryllus migratorius* of Linneus.—*Joseph Duff*; *Bishop's Auckland, county of Durham, February 17, 1848.*

Occurrence of the Locust near Lancaster.—I have a fine specimen of the migratory locust, which was taken on the 10th of August, at Sunderland, near Lancaster, the most western point in this county.—*C. S. Gregson*; *Liverpool.*

Dragon-fly devouring a Wasp.—I once had an opportunity of watching a large dragon-fly while sitting on a laurel leaf, very busy devouring a wasp which he had just captured. He did not fly away until his prey was entirely consumed, and the noise made by his jaws was as though he were eating a biscuit, so hard and crisp was the covering of the wasp.—*Alexander Pytts Falconer*; *Becton, Christchurch, Hants, February 7, 1848.*

*Zoology for Schools.**

[This little volume is of that class of introductory works which are calculated to do good, by affording a key to some of the mysteries of science. I wish that science had no mysteries; but seeing that it has,—seeing that the most celebrated of our zoological teachers deal in mysteries,—I welcome the appearance of an unpretending volume which offers a clew to the labyrinth. It were breaking a fly upon the wheel to cavil at the little errors that might be pointed out: suffice it to say that it is written by a zealous promoter of the science; so zealous indeed in the dissemination of zoological lore, that he has not devoted quite enough time to acquire a stock-in-trade sufficient for the requirings of his customers.—*E. N.*]

First Steps to Anatomy.†

[I like this book, from its possessing a very truth-telling title, and a very truth-telling manner throughout: few authors who adopt the titles of “first steps,” “rudiments,” “primitiæ,” &c., confine themselves to the simplicity which such titles profess. Dr. Drummond has done this, and his ‘First Steps to Anatomy’ are adapted to those who are really beginners: hence I have pleasure in cordially recommending his work to those who desire an initiation into the study of anatomy.—*E. N.*]

Zoological Recreations.‡

[This is a very agreeable book, and calculated to do good service in the cause of Zoology, notwithstanding two rather prominent defects; *first*, an unfortunate *penchant*

* ‘Introduction to Zoology, for the Use of Schools.’ By ROBERT PATTERSON. London: Simpkin, Marshall & Co. 1846.

† ‘First Steps to Anatomy.’ By JAMES L. DRUMMOND, M.D. London: Van Voorst. 1846.

‡ ‘Zoological Recreations.’ By W. J. BRODERIP, Esq. London: Colburn. 1847.

for the display of wit ; *secondly*, a too perfect reliance on the dicta of others. The *first* leads to the introduction of many passages which are totally irrelevant, as for instance that about "bores," and one entire chapter entitled "a word to anglers." Adapting my phraseology to the author's, I would say such parts of the book are very "wet-blanketty." The *second* induces Mr. Broderip to reproduce, among others of the like kind, Daines Barrington's fallacy about birds studying their songs under parental tuition, and to follow up the matter by showing that birds brought up from the egg by hand are either mute or learn the notes of the first prattler that comes in their way : if this were true, the countless myriads of chickens hatched by the new steam process would learn, from the women and children who tend them, all manner of metropolitan small-talk ; whereas the dame partletts and chanticleers cackle and crow in the veritable method of their progenitors : ducks, again, that are hatched under hens squeak and quack in the true style of their kind, though they never enjoyed the advantage of parental tuition ; and guinea-fowls hatched under a barn-door hen, miles from the nearest of their congeners, seem to feel acutely the bereavement of kindred, and incessantly invite them to 'come-back,' 'come-back.' Mr. Broderip, however, is a compiler of much skill ; and though a greater extent of practical experience would have added value to his volume, we must not forget that his opportunities for observation have not been those of a White, a Waterton, a Knapp, a Couch, an Atkinson or a Bury,—men who have so eminently succeeded throughout their natural-history writings in blending the strikingly agreeable and the perfectly intelligible with the strictly true. It is very difficult, immersed in a Babylon like ours, to appreciate justly the assertions and hypotheses of others,—to know what is dross and what pure ore,—to separate the wheat from the chaff ; and that one who cannot appeal to the test of observation should occasionally fail in this, is matter neither for surprise nor for harsh comment. I rejoice that so able a pen and so educated a mind have given to Zoology the advantage of their assistance ; and I hope that Mr. Broderip will pursue the course he has taken, and prosper therein. I will quote a few paragraphs written in the author's best style, and hope to return to the volume should I ever find space for more.—*E. N.*]

"*American Monkeys.*—Many of the forests of South America flourish in all their primitive grandeur. Immense tracts are covered with vegetable forms in every stage of luxuriant development. Towering trees, their trunks embraced by gigantic twiners and garlanded by a profusion of plants, in whose curious and splendid blossoms Nature seems to have imitated in the wantonness of her prodigality almost every variety of insect shape, shoot up and darken the light of day with their broad shadows.

"In these 'boundless contiguities of shade,' which have never echoed to the woodman's axe, the most perfect silence reigns during the day ; a silence, unbroken save by the crashing fall of some ancient tree prostrated by the weight of years, and carrying with it in one vast ruin all that it had long fed and fostered.

"But, if all is silent during the day, at night

'The wonted roar is up amidst the woods,
And fills the air with barbarous dissonance ;'

for in the depths of these solitudes live the howling monkeys, to whose voice the voice of the Rev. Gabriel Kettledrummle would be but as the sough of the wind in the bracken.

“ We have already stated that the South-American monkeys are all blessed with tails, but they are deprived of those brilliant blue and red callosities which give so much splendour to the integuments of many of the Old World family, and recal sometimes a part of the costume of a certain unearthly pedestrian ; for *his* femoral habiliments

‘ were blue,

And there was a hole where the tail came through.’

Neither do they rejoice in cheek-pouches : they are, consequently, unable to keep anything in the corner of their jaws, or to furnish forth any rebuke to the Rosencrantzes and Guildensterns of the several courts in this best of all possible worlds.

“ ‘ The howlers,’ as they are termed, claim our first attention. They are the largest of the American Simiadae, and the fierce brutality of their disposition, joined to their low facial angle, remind the observer of the baboons of the old continent, whilst their gregarious habits and nocturnal howlings agree with the manners of the gibbons. The yells uttered by these howlers in the dead of the night are described as absolutely appalling. They strike upon the ear of the uninitiated benighted traveller as if they were not of this world ; and even to the naturalist they are terrible. ‘ Nothing,’ says Waterton, speaking of the Mono Colorado, or red howler, ‘ nothing can sound more dreadful than its nocturnal howlings. While lying in your hammock in these gloomy and immeasurable wilds, you hear him howling at intervals from eleven o’clock at night till day-break. You would suppose that half the wild beasts of the forest were collecting for the work of carnage. Now it is the tremendous roar of the jaguar as he springs on his prey ; now it changes to his deep-toned growlings as he is pressed on all sides by superior force ; and now you hear his last-dying moan beneath a mortal wound.’

“ When Humboldt and Bonpland landed at Cumana they saw the first troops of Araguatos, as they journeyed to the mountains of Cocallor and the celebrated cavern of Guacharo. The forests that surrounded the convent of Caripe, which is highly elevated, and where the centigrade thermometer fell to 70° during the night, abounded with them, and their mournful howling was heard, particularly in open weather or before rain or storms, at the distance of half a league. Upwards of forty of this gregarious species were counted upon one tree on the banks of the Apure ; and Humboldt declares his conviction that, in a square league of these wildernesses, more than two thousand may be found. Melancholy is the expression of the creature’s eye, listless is its gait, and dismal is its voice. The young ones never play in captivity like the Sagoin ; no, ‘ The Araguato de los Cumanenses,’ as the worthy Lopez de Gomara voucheth, ‘ hath the face of a man, the beard of a goat, and a staid behaviour,’ such, in short, as may well beseem the possessor of such a ‘ powerful organ,’ as the newspaper critics have it.

“ We will endeavour, with Humboldt’s assistance, to convey to the reader some idea of the structure of this sonorous instrument. That most observing traveller states that the bony case of the os hyoides, or bone of the tongue, in the Mona Colorado, is, in size, equal to four cubic inches (water measurement). The larynx, or windpipe, consisting of six pouches, ten lines in length and from three to five in depth, is slightly attached by muscular fibres. The pouches are like those of the little whistling monkeys, squirrels, and some birds. Above these pouches are two others, the lips or borders of which are of a yellowish cast ; these are the pyramidal sacs which are formed by membranous partitions and enter into the bony case. Into these sacs, which are

from three to four inches in length and terminate in a point, the air is driven; the fifth pouch is in the aperture of the arytenoid cartilage and is situated between the pyramidal sacs, of the same form but shorter; and the sixth pouch is formed by the bony drum itself: within this drum the voice acquires the doleful tone above alluded to. But we are becoming anatomical and soporifical; no more, then, of this 'evening drum,' and turn we to that grotesque race, the Sapajous.

"They are slender, mild in disposition, flat in face, long in tail, and *spidery* in general appearance. The genus *Ateles* of M. Geoffroy St. Hilaire stands first upon the roll. With anterior hands, either entirely deprived of thumbs, or only supplied with mere rudiments, and weak, long limbs, justifying their popular names of 'spider monkeys,' they are compensated by a prehensile tail of such exquisite sensibility and power, that it may be almost considered a fifth hand. For a length of six or seven inches from the tip, this is naked; and, on the under surface, it is comparatively callous for the purpose of prehension. Humboldt asserts that the animal can introduce it, without turning its head, into narrow chinks or clefts, and hook out any substance; but he never saw it employed to convey food to the mouth, though the natives will have it that the monkey goes a fishing with it. Leap the species of this genus cannot, or, at most, but very imperfectly; this tail of all work, however, amply makes amends, for by it they hang suspended from the branches or swing themselves from bough to bough, and from tree to tree, with the utmost agility. Dampier relates, and his statements are generally worthy of credit, that, when troops of them have occasion to cross rivers, they look out for a point where the trees are most lofty and project farthest over the water. Having arrived at such a place, they climb to the boughs best suited to their purpose, and form a long chain by grasping the tails of each other. This chain hangs free at the lower end, while it is held on at the top, and the living pendulum is swung backwards and forwards, till it acquires sufficient vibration to carry the lower end to the opposite bank. Then the lowest joint catches hold of the first branch within his reach, and mounts as high as he can. As soon as he has made himself fast, the upper joint on the other side lets go, and the whole conjoined 'tail' swings, and is carried safely over. Humboldt and Bonpland saw some of them which inhabit the banks of the Orinoco suspended in great numbers from the trees, and hanging on to each other by tail and hands in the most ridiculous groups.

"The Quata, or, as the French write the word, Coaita, is said to unite activity with intelligence, gentleness, prudence and penetration. To be sure the Quatas will, when they meet with a learned traveller, or any other strange animal, descend to the lower branches of their trees to examine the phenomenon, and, when they have satisfied their curiosity, pelt the phenomenon aforesaid, to get rid of him or it: but that they be sensible and trustworthy is proved by Acosta, who has immortalised the Quata belonging to the Governor of Carthagena. This domestic was regularly sent to the tavern for wine. They who sent him put an empty pot into one hand and the money into the other; whereupon he went spidering along to the tavern, where they could by no means get his money from him till they had filled his pot with wine. As this Ganymede of the Governor came back with his charge, certain idle children would occasionally meet him in the street and cast stones at him; whereupon he would set down his pot and cast stones at *them*, 'till he had assured his way, then would he return to carry home his pot. And what is more, although he was a good bibber of wine, yet would he never touch it till leave was given him.' We are sorry to add that this amiable genus is considered very good eating. Humboldt frequently saw the broiled

limbs of the Marimonda in the huts of the natives on the Orinoco; and, at Emeraldal, he found in an Indian hut a collation of their roasted and dried bodies, prepared as the *pièces de résistance* for a 'harvest home.'

"In *Lagothrix*, the head is rounder than it is in *Ateles*, the hands are provided with thumbs, such as they are, but the tail is still long and prehensile, and the under surface at the tip is naked. The species of this genus are of some size. The *Caparro* which inhabits the banks of the Guaviaré, one of the streams that flow into the Orinoco, is two feet two inches in length, without including the tail. The head is very large and round in proportion.

"*Cebus* next claims our attention. In this form we find the tail beginning to lose somewhat of its prehensile powers, and no longer bared at the tip to add to its sensibility as an organ of touch. In lieu of this, the strength is thrown into the limbs, which are well developed, and the anterior hands are remarkably well formed—though, still, less perfectly than those of the Old World monkeys. The first of the five fingers is become more thumb-like, and the palms of the extremities both before and behind are endowed with much sensitiveness. These sylvans are excellent climbers, and of a surprising agility.

"Of these *Cebi*, the horned *sapajou*, with the hair of the forehead standing up so as to give the animal the appearance of having a London waterman's cap on, is one of the largest, while the *Ouavapavi des cataractes*, which is very mild and intelligent, is of small size. We remember once to have heard of a sort of compact which was said to have been entered into between a monkey and a pig, the latter of which carried the monkey a certain number of times round an orchard, in consideration of the monkey's climbing the apple-trees, and giving them a shake for the benefit of the porker. Though not very old at the time, we gave the narrator credit for being blessed with a very lively imagination, albeit the story was told gravely and vouched as a fact. But Humboldt actually saw, at Maypures, one of these domesticated *Ouavapavis*, obtaining his rides apparently without any such understanding; for this clever monkey used to bide his time, and every morning caught a luckless pig, which he compelled to perform the part of his horse. Seated on pigback did he majestically ride about, the whole day, clinging to his bristly steed as firmly as ever the Old Man of the Sea clung to Sinbad, not even giving poor piggy a respite at meal-times, but continually bestriding him all the time he was feeding in the savanna that surrounded the Indian huts. A missionary had another of these riders; but the missionary's monkey had laid the strong hand of possession on a comfortable cat which had been brought up with him, carried him well, and bore all his felestrian exploits with patience and good humour.

"The tail, which has become less and less prehensile in the genera last noticed, becomes in *Callithrix* no longer capable of use as a support. The pretty playful little *Siamiri*, whose length hardly exceeds ten inches exclusive of the tail, which reaches thirteen or fourteen, winds that appendage like a boa round its body and limbs, reminding the zoologist in some degree of the mode in which the white-fronted *Lemur* disposes of his; and we now begin to observe, moreover, traces of insectivorous and carnivorous appetite. The *Macavacahow*, at the sight of a bird, is roused at once from its apparent apathy; darting on its victim like a cat, it secures the prize and swallows it in an instant, with all the actions that mark the beast of prey.

"In the *Dourocouli*, the *Cara rayada* of the missionaries, we observe traces of the cat in appearance, voice and manners. This curious animal is nine inches in length,

and its tail, which is hairy, but not prehensile, is about fourteen; the head is large and round; the muzzle short; the eyes very large; but there is no apparent external ear. Three dark stripes are drawn on the head, and come down in front, the centre stripe on the forehead and the two lateral ones reaching to the rounded corners of the eyebrows.

"The Dourocoulis are captured during the day by the natives when they are fast asleep in some hollow tree. The male and female are often taken in the same hole, for they live in pairs. In a state of nature they pursue small birds and insects, not neglecting vegetables, almost every kind of which they will eat. Humboldt's specimen was very fond of flies, which it caught dexterously, and would even sometimes rouse itself for this chase on a gloomy day. Its night cry resembled that of the Jaguar, and it is thence called *Titi-tigre*. The mewing notes which it occasionally sends forth remind the hearer of a cat, and this resemblance is heightened when the head of a Dourocouli in a state of irritation swells, and the animal hisses or spits, throws itself into the position of a cat when attacked by a dog, and strikes quick and cat-like with its paw. Its voice is very powerful for its size. In the Leoncito, whose body does not exceed seven or eight inches in length, we have much of the appearance of a tiny lion.

"But it is in the genus *Pithecia* that we have the nearest approach to human likeness. There are some strong resemblances in the *Couxio*; but, as Humboldt well observes, of all the monkeys of America, the Capuchin of the Orinoco bears the greatest similitude in its features to man. There are the eyes with the mingled expression of melancholy and fierceness; there is the long thick beard; and, as this last conceals the chin, the facial angle appears much less than it really is. Strong, active, fierce, the Capuchin is tamed with the greatest difficulty, and, when angered, he raises himself on his hinder extremities, grinds his teeth in his wrath, and leaps around his antagonist with threatening gestures. If any malicious person wishes to see this *Homunculus* in a most devouring rage, let him wet the Capuchin's beard, and he will find that such an act is the unforgiveable sin. There is one point, indeed, wherein our monkey differs from civilized man—he very seldom drinks; but, when he does, the similarity returns. Unlike the other American monkeys, which bring their lips to the liquid, the Capuchin lifts the water in the hollow of his hand, inclines his head upon his shoulder, and, carrying the draught to his mouth in the cup of *Diogenes*, drains it with great deliberation. This appears to be his mode of drinking in a state of nature; and Humboldt thinks that it is adopted to prevent the wetting of the beard, which renders the animal furious, and which could not be avoided if the lips were applied in the usual Simian mode. Our friend the Capuchin is about two feet nine, bushy tail and all, of a brownish red colour, the hair of the body being long, and that on the forehead having a direction forwards. The beard, which arises below the ears, is brown, inclining to black, and covers the upper part of the breast. His large sunken eyes are overarched with well-marked brows, and his nails are bent, with the exception of those on his thumbs. He is not gregarious, and is seldom found in company with his female."—p. 227.

Anecdote of a Cat.—A short time ago, whilst calling at the house of a friend, I witnessed a curious act on the part of a cat belonging to the house. In front of the house was a little garden, entered by a glass door, which was furnished with a knocker about two feet from the ground; and into this garden puss was accustomed to go for the purpose of enjoying the sunshine. When she wished to enter the house, she reared herself on her hind legs, and, raising the knocker, gave one loud rap; if that was unheeded she rapped thrice. How she raised the knocker I was not able to see; but probably resting on the door with one paw, she lifted the knocker with the other. This, though a trifling incident, contributes to show that animals are sometimes possessed of something analogous to a reasoning power.—*H. Barclay; Leyton, Essex, February 9, 1848.*

A Church-going Turnspit.—“In the West of England, not far from Bath, there lived, towards the close of the last century, a worthy clergyman, who was as benevolent as he was learned. There were turnspits in those days—a most intelligent set they were, and Toby, who was an especial favourite, was a model of the breed, with legs worthy of the *Gow Chrom* himself, upon which he waddled after his master everywhere, sometimes not a little to his annoyance; but Toby was a worthy, and he could not find it in his heart to snub him. Things, however, came at last to such a pass, that Toby contrived somehow or other to find his way to the reading-desk on a Sunday, and when the door was opened, he would whip in, well knowing that his reverend patron was too kind and too decorous to whip him out. Now, though it has been said that

‘He’s a good dog that goes to church,’

the exemplary Dr. B., who thought he had traced a smile upon the countenance of some of his parishioners on these occasions, felt the impropriety of the proceeding: so Toby was locked up in the stable on Sunday morning; all to no purpose, however, for he scrambled through the shut window, glass, lead and all, and trotted up the aisle after his annoyed master as usual. Matters were now getting serious; so as soon as he had on the Saturday caused the beef to revolve to a turn which was to be served cold for the Sunday dinner—for the good man chose that all around him should find the Sabbath a day of rest—Toby was taken out of the wheel, and his dinner was given to him; but instead of being allowed to go at large to take his evening walk after it, Molly, to make sure of him, took him up by the neck, and, putting him into the wood hole, where window there was none, drew the bolt, and left him therein. Toby revenged himself by drying up the souls of the whole family with his inordinate expostulatory yells during the whole of the remnant of Saturday and the greater part of Sunday. However, there was no Toby dogging the heels of the surpliced minister, and it was concluded that the sufferings that the doggie and the family had undergone would have their effect. Well, the week wore on, Toby as amiable and as useful as ever, without a particle of sullenness about him—into the wheel went he right cheerfully, and made it turn more merrily than ever; in short, parlour, kitchen and all were loud in his praise. However, as it drew towards twelve o’clock on the Saturday, Toby was missed. Poor Molly, the cook, was at her wit’s end.

‘Where’s that vexatious turnspit gone?’

was the question, and nobody could answer it. The boy who cleaned the knives was despatched to a distant barn, where Toby was occasionally wont to recreate himself after his culinary labours, by hunting rats. No—no Toby. The sturdy thrashers,

with whom he used sometimes to go home under the idea, as it was supposed, that they were the lords of the rat-preserve in the barn, and who, being fond of Toby, in common with the whole village, used occasionally to give him

‘ A bit of their supper, a bit of their bed,’

knew nothing of him. Great was the consternation at the Rectory. Hints were thrown out that ‘ The Tramps ’ in the green lane had secreted him with the worst intentions, for he was plump and sleek ; but their camp was searched in vain. The worthy family retired for the night, all mourning for Toby : and we believe there is no doubt that when the reverend master of the house came down on Sunday morning, his first question was, ‘ Any tidings of Toby ? ’—a melancholy ‘ No, sir,’ was the answer. After an early breakfast, the village schools were heard—their rewards distributed, not without inquiries for Toby—and when church-time came, it is said that the rector, who walked the short distance in full canonicals, looked over his shoulder more than once. He passed through the respectful country-people collected in the little green grave-yard, who looked up to him as their pastor and friend ; he entered the low-roofed old Norman porch, overhung with ivy ; he walked up the aisle, the well-filled pews on either side bearing testimony that his sober-minded flock hungered not for the excitement of fanaticism ; he entered the reading-desk, and, as he was adjusting his hassock, caught the eye of Toby twinkling at him out of the darkest corner. Need we say more, than that after this, Toby was permitted to go to church, with the unanimous approbation of the parish, as long as he lived. Now if this was not *calculation* on the part of Toby, we know not what else to term it, and we could refer our readers to well-authenticated stories *in print*—as our dear old nurse used to say when she was determined to silence all incredulity—that go as far, and even farther, to show that these animals can calculate intervals of time.”—‘ *Zoological Recreations*,’ p. 184.

Some Account of the People of St. Kilda and of the Birds of the Outer Hebrides.

By W. M. E. MILNER, Esq.

As my observations on the birds of Sutherlandshire and Ross-shire seem to have been interesting to the readers of the ‘ *Zoologist*,’ I have great pleasure in continuing an account of our researches in the outer Hebrides and St. Kilda, and by your permission will add a short account of the extraordinary people of that remote island.

I brought our account of the birds of Ross-shire as far as the coast of Skye, from which island we took our departure, in Mr. Matheson’s steamer, for Stornaway ; and after a delightful passage of seven hours and a half, cast anchor in the capital of the outer Hebrides, on a charming summer’s morning, the 29th of May. The whole population seemed busily engaged in the herring fishery, and we remained only long enough to be most hospitably received by Mr. Scobie, Mr. Mattheson’s factor, who facilitated in every possible way our journey to the Harris. We saw nothing at Stornaway, except very fine specimens of the golden and white-tailed eagle, both taken a short time before we arrived there ; the latter trapped near its nest (in the neighbourhood of Stornaway), which contained one egg. The whole of the east and middle of

the Lewis is very barren, and its surface covered by innumerable small shallow lakes, not frequented by birds. On arriving at Loch Seaforth, we met with a very intelligent man, keeper to Mr. Lloyd, who lives at the shooting lodge, Achlin, and he was of great use in procuring us specimens of several rare birds. On Loch Langavat, in Lewis, we were fortunate in meeting with three specimens of the gray-legged goose, all with the dark feathers on the breast. In the same locality a pair of greenshanks were evidently breeding, but their eggs could not be found. The red-breasted merganser was very common, and we found several nests. The red-throated diver was breeding on Loch Langavat. Nests of the golden plover were in great abundance on the adjoining hills. On the island of Scalpa, at the entrance of Loch Tarbert, we saw a purple sandpiper, on the 31st of May, in full summer plumage. In this locality the oyster-catcher was very abundant, and we met with several pairs of the black guillemot. In our sail from Loch Tarbert to Rowdil, on June 1st, we saw several pairs of the bean goose, and procured specimens of the turnstone in full summer plumage, but I do not think they had begun to lay, for they were in flocks of four and five; and near Rowdil, the southern extremity of Harris, we were gratified by finding an eyrie of the peregrine falcon, containing four young birds. The old ones were too cautious to come within reach of the gun, and we left them their progeny in peace. The people here seem very contented, though badly off; and I was sorry to hear subsequently that the potatoes, which looked very healthy in June, have turned out very ill. Lady Dunmore, represented by her excellent factor Captain Macdonald, has been most active in administering to the wants of the people; and by the constant supply of meal brought by the Government steamers to the various depôts, not a man in the outer Hebrides has perished from want.

We were disappointed in not meeting with the pink-footed or short-billed goose in the islands of the Sound of Harris. They are so constantly visited that the geese are now fast leaving them: we found but a few pairs, and they too wild to enable us to get a shot at them. The eider duck was breeding in the small islands, also the greater and lesser black-backed and common gulls in tolerable abundance, a large colony of arctic terns, innumerable oyster-catchers, and a few shieldrakes, which breed in the holes in the sandy islets of the Sound and North Uist. There were a good many Richardson's skuas: we had frequent opportunities of witnessing their voracity in pursuit of the gannet, and making them disgorge their food, which the persecutor frequently caught as it was falling, and flew away with in triumph. On the 2nd of June we were almost within shot of a very fine specimen of the great northern diver, in full summer plumage. The keeper at Achlin positively asserts that it breeds in one or two of the lochs in Lewis, and has promised to procure us the eggs and young; he certainly described the three kinds very accurately.

Finding that little was to be done in ornithology in Harris, we crossed over to North Uist, twelve miles over the Sound of Harris from Rowdil, belonging to Lord Macdonald, a flat island, containing 5000 inhabitants, completely dotted over with small lakes, and the retreat of innumerable water-fowl chiefly in winter. We are indebted to the Rev. Mr. Mc Rae and Mr. Macdonald of Balronald, by whom we were most hospitably and kindly entertained, for all the success we met with in this island, which of all the outer Hebrides is best worth visiting. On the west coast we found the dunlin in considerable numbers, the common snipe as well as the jack snipe in more than one locality, though we sought in vain for the nest of the latter. The mountain linnet, peewit, ringed plover and rock dove in abundance; and near Bal-

ronald we were fortunate in obtaining three pairs of the red-necked phalarope, evidently just arrived, and out of one Mr. Graham took a perfect egg. It does not seem a fact generally known, that the bird with the neck and throat most deeply coloured, and if anything the larger of the two, is the female. This we ascertained to be the case in each of the three specimens we obtained. They were very tame, allowing us to come within a few yards of them. They were in company with the dunlins.

On the 5th of June we made an excursion to the lakes in the interior of the island, accompanied by Lord Macdonald's keeper and a party of stout islanders, carrying a light boat from loch to loch. On Loch Scatavagh we expected to have met with geese, but their nests had been robbed, and they had left the islands in the loch. Here the three different kinds of gulls were breeding abundantly. On one of the islands we rose a jack snipe, apparently from its eggs, which we sought for in vain. On Loch Ean (the Bird Lake) we saw several arctic skuas, and found one egg deposited on the ground without any nest. They had only just begun to lay, being three weeks later than any of the other gulls. Here we found the black-throated diver breeding, and obtained two eggs. The old birds again eluded us, though my brother got a fine shot at the female with cartridge; unluckily too near, for the cartridge passed close to the bird's head without bursting. The nest had been robbed before, and the birds had a second time chosen precisely the same locality for depositing their eggs, which were laid, without any nest, close to the water's edge. We saw several pairs of wild geese late in the evening, but could not be sure which kind they were of. We heard that in winter the quantity and variety of wild-fowl in this island is wonderful. The whimbrel, called here the mayfowl, is in abundance, but never remains to breed. We saw no greenshanks, mentioned as not an uncommon bird by Mr. Mc Gillivray.

I cannot close my account of North Uist without expressing my admiration at the exertions of Lord Macdonald, so fully carried out for the benefit of the people by Mr. Macdonald and the Rev. Mr. Mc Rae. I should be sorry to make any comparison with the sister kingdom, but the state of North Uist affords a bright example of how much good may be done, even with small means, by a landlord anxious for the good of his tenantry, when aided by a zealous factor, and an active, kind-hearted clergyman.

After being most hospitably entertained in North Uist, we returned back to our kind friends at Rowdil, and made preparations for our voyage to St. Kilda, for which we hired a very comfortable little cutter of forty tons, formerly engaged as the mail-packet between Skye and Harris, well manned by an able crew of five men, which in most seasons of the year is necessary, for the navigation is dangerous, from the currents and storms rising up very suddenly. We were to be taken to St. Kilda, back to Rowdil, thence to Stornaway, and to be landed at Loch Inver, in Sutherlandshire, for £17. Our starting-place was Ob, the south-west point of Harris, where we were detained three days by contrary winds. Our companions were, the Rev. Neil Mackenzie, the former clergyman of St. Kilda, to whose kindness and zeal we were mainly indebted for the great success we met with, and who was anxious for a passage to visit his old flock,—and the Rev. Mr. Macdonald, the clergyman of Harris, in which parish St. Kilda is situated, and whose services as an interpreter we found very useful in an island where not a word but Gaelic is understood. The distance from Ob is about sixty miles, but from Cape Grøæmenish, on the west coast of North Uist, it is but forty-two; perhaps the most treacherous passage ever made in those seas. We weighed anchor on the 12th of June, at six in the morning, with a favourable wind,

passed Pabbay, North Uist, and the rocks of Hasker, and till within fifteen miles of St. Kilda seemed likely to make an excellent passage. Borrera, an island five miles north of St. Kilda, rose majestically 1400 feet out of the sea, but a haze prevented our seeing its kindred rock. Shortly after catching sight of Borrera a sudden storm overtook us, and for four hours we were beaten about most helplessly. Our pilot was out of his reckoning, and when everything was prepared to stand out to sea for the night we unexpectedly swung into the bay of St. Kilda, just visible through the fog, and cast anchor within 200 yards of its rocky iron-bound shore at four in the afternoon. The whole air and sea were alive with birds; the puffin and guillemot on that side the island in the greatest abundance. Upon waking in the morning we were delighted with the first clear view of this wonderful island. St. Kilda is in the shape of a half-moon, three miles long by one and a half wide, great majestic rocks starting up out of the sea, the highest (Conaker) 1400 feet, rivalling in height the neighbouring rock of Borrera. At the entrance of the bay stands a round-shaped rock, called Levenish, and the west side has the cliffs in curious shapes like pinnacles. The village gives one the idea of a number of bee-hives, all thatched, with no chimneys, the smoke escaping through the roof; some few have glass windows, and two or three of the commonest articles of furniture, but most are very dark and dirty. The only slated buildings are the manse (now deserted since Mr. Mackenzie's absence), the church and store. We went ashore the next day, which was Sunday, and attended service at the church. Every human being was there; and the attention to the whole service, lasting near four hours, was wonderful: even during the English service not a word was spoken, neither was there any curiosity shown at our appearance among them. Their affection for their minister seems very great; and his account of them, very much corroborated by what we saw, proves, that though separated by a stormy ocean from the rest of the world, and visited by not more than three or four vessels in the year, they deserve the credit of being the most virtuous, moral and religious people in the British Isles. All the vices common to the world are unknown to them, and their minds seem perfectly uncorrupted: with the exception of an occasional difference there is nothing to disturb the harmony of the Republic, which St. Kilda most nearly resembles. They have their annual parliament to debate about the rock and the fulmars: every portion is most carefully divided, and lots are cast for the different portions, some being much better than others. They consider it one of their first duties to provide for the widows and old maids; and their strict and regular attendance to their religious duties, in the absence of their minister, is very striking. We found them hospitable, most anxious to serve us, and, unlike their brethren in the mainland, we had great difficulty in persuading them to take what we considered they were entitled to for two hard days' work among the cliffs and rocks. Tobacco is to them the greatest luxury, and we fortunately had taken out several pounds of pigtail, which delighted them not a little. The whole population does not exceed a hundred, and has been stationary for many years. The men are fair, about the middle height, and well clothed in the homespun woollen clothing of the Highlands, blue jackets and trowsers. The women are dark, many of them good-looking were it not for their dirty and untidy appearance. I did not discover that they were long-lived. The oldest man on the island was not above 70. The annual average of births and deaths is five. In the last twelve years the births have been sixty-eight, deaths sixty-five. The annual average of marriages is two. Last year every child born was carried off by a disease called in St. Kilda the 'eight-day sickness,' which quite baffles the skill of the medical men. It is a species of

croup, and is peculiar to the Westmann Islands, under the dominion of the King of Denmark, and St. Kilda. They subsist entirely upon the sea birds, principally the puffin, which is in immense abundance: their means of taking them, by long rods with nooses attached to them, and their extraordinary adroitness in clambering in pairs among perpendicular cliffs, have been too often described to make it necessary for me to occupy more of your space on the subject; but when I state that eleven hundred gannet are taken in a single night, it will give a good idea of their wonderful skill. They keep their peat, which is merely cut from the surface of the soil, in small cairn-like buildings of great antiquity. The present proprietor, Mr. Macleod, is most kind and charitable to the people: he sent a large vessel laden with meal in the time of the distress, and at the present moment has offered an annual stipend of £100, in addition to £50 previously given, to any clergyman who will undertake the spiritual charge of these poor islanders. His family was originally from St. Kilda; his grandfather was catechist of the island, and the present man bought it a few years ago for £1400. The people pay their rent in kind. Each family contributes seven stone of feathers, valued at five shillings a stone; these are procured from the fulmar, gannet and puffin. It requires the feathers of eighty fulmars to make a stone, the same number of gannets and eight hundred puffins. Each family has also to contribute twenty pecks of barley (bear), at a shilling a peck; and from most of the families the proprietor receives rent, for a cow's grass seven shillings, for a sheep's grass one shilling, and for a lamb's grass sixpence per annum. The average number of sheep possessed by each family is eight: some few have two cows. The price of a full-grown sheep is five shillings, of a lamb ninepence. In addition to exporting wool and feathers, the people send out annually thirty-two barrels of bird-oil, principally obtained from the fulmar, which sells at £3 the barrel. The average number in each family is four: one man, and one only, has five children. The houses are twenty-eight in number, of which twenty-one have land attached to them, and are inhabited by married men and widowers. The remaining seven are occupied by old maids and widows. Fishing is entirely neglected, from the extreme danger of the rocks; and they only possess two boats, which they use to go to Borrera about once a month, to Soa, an island not more than half a mile from St. Kilda, and Dun, which is only separated from the main island by a chasm in the rock. St. Kilda is the only inhabited island of the four. And now, having I fear wearied your readers with this long description of the inhabitants of St. Kilda, whom it is impossible for any one to visit without feeling deeply interested, I will proceed to give you an account of our ornithological researches in this isolated spot.

On the first morning, attended by the whole male population of the island, we ascended the cliff from the village to its north-eastern side, their chief preserve of the fulmar, which we saw in countless thousands, some upon their single white egg, others gliding through the air, with their graceful noiseless flight within a few feet of us. The islanders would only take one bird and its egg from this locality, for fear of disturbing their great breeding-place, but promised us a larger supply from Borrera the following day. It is the young fulmar which is the valuable product of the island; its feathers are more prized, its flesh more tender, and the oil extracted from it more pure and in greater abundance than from the old birds. We procured two or three remarkable nuts, taken from the crops of the young fulmars, apparently Brazilian. We could only account for their being found in such an unlikely quarter, by the birds having settled on the wrecks of some vessels sailing from South America. I shall be

happy when I come to London to show you one which was taken from the bird last year. The view from the highest point of this cliff was magnificent. It was very striking, looking northward, southward, eastward and westward, to see nothing but a wide expanse of blue ocean (save the neighbouring rock of Borrera) covered for a few miles by innumerable sea fowl.

We proceeded in the afternoon to the isle of Dun, forming the western horn of the bay of St. Kilda. Here the razor-bill, puffin, guillemot, black guillemot, oyster-catcher, eider duck, fulmar, herring gull, and the greater and lesser black-backed gulls, were breeding in abundance; but in addition to these we discovered the chief object of our visit to St. Kilda. Not far from the top of the cliff were a colony of the fork-tailed petrel, breeding, like the stormy petrel, under the stones and rock, about a yard deep. We were first attracted to them by a low chirping noise, which from time the females made while sitting upon their eggs. In one hole only did we find the male and female together. The egg is considerably larger than that of the stormy petrel, and resembles it in being surrounded at the larger end by a beautiful zone of red freckles. They are nearly three weeks before the stormy petrel in depositing their eggs; and in the localities where we found the fork-tailed petrel there was not a single stormy petrel.

On the following day we divided, one party going to Soa, the chief breeding-place of the shearwater, and the rest of us rowing over to Borrera, where the gannet breeds in great abundance. This rock, with its smaller satellites, lies five miles north-east of St. Kilda, and, excepting in a north wind and calm sea, is unapproachable from St. Kilda. It is a mile and a half long by half a mile broad. We were fortunate in our day, and after a two hours' row by fourteen men, in a very clumsy boat, we arrived at one of the smaller stacks of rocks close to Borrera, entirely occupied by kittiwakes and guillemots. By the aid of our glass, we distinctly made out two specimens of the ringed guillemot (*Uria lacrymans*), which the intelligence of the islanders enabled us to obtain, one, sitting on its egg, taken by the noose in the manner I before described, a male bird, and proving the absurdity of the idea that the ringed guillemot lays a white egg. The egg we took was of a bright green, covered with irregular lines of brownish black. The bird itself differs very little from the common guillemot, except in being a trifle smaller, and having the bill a little more slender. We took an egg from the common guillemot, quite white, excepting two or three brown spots; and one I received from Hamborough this year was perfectly white. Brunnich's or the thick-billed guillemot is found in Soa. The other party took one egg, which does not at all differ from some varieties of the egg of the common guillemot; it is streaked, and not spotted or blotched, and of a bright green colour. Borrera is the chief pasturage for their sheep, which are very wild. The wool is of a dun and gray colour, and very fine. The mutton excellent, though of course not fat. The ascent up Borrera was very difficult: with a rope round our bodies we were taken in tow, and without shoes, owing to the slippery state of the rocks, half carried half scrambling, succeeded in mounting to a height of 700 feet, about midway to the summit. We then proceeded to the top, the same height as Conaker, about 1400 feet above the sea level, and to describe the view I should be gifted with the pen of a Scott or a Cowper. If St. Kilda struck us with astonishment, what shall I say of Borrera? It alone amply repaid us for all our trouble, all our journies. Every step we took the view became more splendid; the two highest pinnacles appear to stretch up to the sky, both of them quite perpendicular into the sea 1400 feet. The stacks about it look like dots

in the ocean; and the gannets nestling on its sides give it quite the appearance of a chalk cliff; the sea of the brightest blue, covered with myriads of sea fowl; turning your eyes towards St. Kilda you see the whole of it, with Soa tacked on as it were to it on one side, and Dun on the other, apparently one island with a great loophole in it, while the mighty Conaker raises himself majestically above the other numerous peaks. It is impossible to describe the grandeur of a great mass of rock rising straight out of the sea, far—far away from any land, except its subject rocks. Looking from the other side you see the whole of the Long Island, from the Butt of Lewis to Barra Head, 130 miles long, and everywhere else the clear blue Atlantic. Our first prize was several specimens of the common stormy petrel, none of which had begun to lay, though the eggs in each when opened were quite visible. We also obtained four more fork-tailed petrels and their eggs, several fulmars, gannets and herring gulls, with their eggs. On our way back, my brother fired and killed a pair of shags, and one of the active islanders clambered up the rock and brought us down three of their eggs. We arrived safely at St. Kilda, and found the party from Soa before us. They had been more fortunate than us, in procuring one egg of the common stormy petrel, with three pairs of old birds, one fork-tailed petrel, and two pairs of shearwaters with their eggs. The shearwater's principal resort is Soa; there are none in Borrera or St. Kilda, and but few in Dun. Like the stormy petrel, they breed in holes under rocks and stones. Their breeding-places are very difficult to be discovered, for, unlike the stormy petrel, they do not attract you by any sound. The sure way to procure them is to watch them into their holes at night, the only time they are found stirring; and sometimes the islanders discover them by the sagacity of their dogs, who smell them in their retreats: but though we tried very hard, we could only obtain two eggs, and they were nearly hatched. Mr. Mackenzie informed us, that when he was on the island, a roller was seen for two or three days one winter, but having no powder he was unable to secure it: he also mentioned the whimbrel, common and jack snipes, common gray linnet, wild swans and wild geese, as occasional visitors. We found a starling breeding in a curious place, about two feet under a large stone, on the steep side of Conaker.

Having procured all that these islands possessed in the way of ornithology, we took leave of our hospitable friends on the evening of the third day, who really seemed sorry at our departure, and all shook hands with us most heartily. Their leave-taking with their minister was very touching: they stood on the rocky shore, in a bright moonlight night, grouped round him, listening with the greatest attention to his parting exhortations for two hours, and when he made the signal for departure there was not a dry eye in the island. So much had this good man made himself beloved, that the people would have obeyed him in everything except leaving their barren rock, to which they are most deeply attached. We weighed anchor at about five o'clock in the morning, amidst the regrets of the people; the sea like glass, and scarce a breeze to carry us to Harris; and we did not arrive at our moorings at Ob till eleven at night. On the following day we had a delightful sail through the Sound of Harris, and along the east coast of that island and Lewis to Stornaway, passing the Shiant Isles, well worth visiting on account of the innumerable sea-fowl resorting to them; and after remaining at the capital of the Hebrides long enough to land Mr. Graham and our treasures, all of which he had to prepare, we set sail to Loch Inver, there taking leave of our vessel and our civil and agreeable crew, after a delightful cruise of a fortnight among these wild islands.

I will just add a list of the birds we saw in the outer Hebrides, and the date of their being seen.

List of Birds of the Outer Hebrides.

- Golden Eagle (*Aquila chrysaetos*). Stornaway, May 29.
 White-tailed Eagle (*Aquila albicilla*). Stornaway, May 29; St. Kilda, June 15.
 Peregrine Falcon (*Falco peregrinus*) and young. Rowdel, Isle of Harris, June 1; St. Kilda, June 15.
 Merlin (*Falco Æsalon*) and eggs. Loch Seaforth, May 31.
 Thrush (*Turdus musicus*). St. Kilda, June 14; Harris, June 17.
 Wheatear (*Sylvia œnanthe*). Everywhere abundant.
 Pied Wagtail (*Motacilla Yarrellii*). St. Kilda, June 15.
 Meadow Pipit (*Anthus pratensis*). St. Kilda, June 15.
 Rock Pipit (*Anthus obscurus*). St. Kilda, June 15.
 Twite (*Fringilla montium*). Harris, North Uist, St. Kilda, May 29 to June 17.
 Starling (*Sturnus vulgaris*) and nest. St. Kilda, June 15.
 Raven (*Corvus corax*) and young. Loch Tarbert and St. Kilda, May 31.
 Hooded Crow (*Corvus corone*). Everywhere abundant, May 29 to June 16.
 Rock Dove (*Columba livia*). Sound of Harris, June 2; St. Kilda, June 15.
 Golden Plover (*Charadrius pluvialis*) and eggs. Loch Seaforth, May 31.
 Ringed Plover (*Charadrius hiaticula*) and eggs. North Uist, June 2.
 Peewit (*Vanellus cristatus*) and eggs. Everywhere abundant, May 31 to June 15.
 Turnstone (*Streptilas interpres*). Scalpa, June 1.
 Oyster-catcher (*Hematopus ostralegus*) and eggs. Everywhere abundant, May 31 to June 15.
 Curlew (*Numenius arquata*). Harris, June 1.
 Whimbrel (*Numenius phaeopus*). North Uist, June 4.
 Common Redshank (*Totanus calidris*). Harris, North Uist, June 1 to 8.
 Common Snipe (*Scolopax gallinago*) and eggs. North Uist, June 4.
 Jack Snipe (*Scolopax gallinula*). Loch Scatavagh, North Uist, June 5.
 Common Sandpiper (*Totanus hypoleucos*). Harris, June 1; St. Kilda, June 14.
 Greenshank (*Totanus glottis*). Loch Seaforth, May 31.
 Dunlin (*Tringa variabilis*). Abundant, Harris, North Uist, June 1 to 6.
 Purple Sandpiper (*Tringa maritima*). Scalpa, May 31.
 Red-necked Phalarope (*Phalaropus hyperboreus*). Balronald, North Uist, June 7.
 Gray-legged Goose (*Anser ferus*) and eggs. Loch Langavat, May 31.
 Bean Goose (*Anser segetum*). Scalpa, May 31.
 Common Shieldrake (*Tadorna vulpanser*). Sound of Harris, June 2.
 Eider Duck (*Anas mollissima*) and eggs. Sound of Harris, June 1; St. Kilda, June 15.
 Red-breasted Merganser (*Mergus serrator*) and eggs. Very common, June 1 to 8.
 Great Northern Diver (*Colymbus glacialis*). Sound of Harris, June 2.
 Black-throated Diver (*Colymbus arcticus*) and eggs. Loch Ean, North Uist, June 5.
 Red-throated Diver (*Colymbus septentrionalis*) and eggs. Loch Langavat, Lewis, June 1.
 Common Guillemot (*Uria troile*) and eggs. St. Kilda, Borrera, June 15.
 Brunnich's Guillemot (*Uria Brunnichii*) and eggs. Soa, June 15.

- Ringed Guillemot (*Uria lachrymans*) and eggs. Borrera, June 15.
 Black Guillemot (*Uria grylle*). Scalpa, May 31.
 Puffin (*Alca arctica*) and eggs. St. Kilda, Borrera, June 15.
 Razor-bill (*Alca torda*) and eggs. St. Kilda, Borrera, June 15.
 Common Cormorant (*Phalacrocorax cristatus*) and eggs. St. Kilda, June 15.
 Green Cormorant (*Phalacrocorax graculus*) and eggs. St. Kilda, June 15.
 Gannet (*Sula Bassana*) and eggs. Borrera, June 15.
 Common Tern (*Sterna hirundo*). Sound of Harris, June 2.
 Arctic Tern (*Sterna arctica*) and eggs. Sound of Harris, June 7.
 Kittiwake (*Larus tridactylus*) and eggs. Borrera, St. Kilda, June 15.
 Common Gull (*Larus canus*) and eggs. Borrera, St. Kilda, June 15.
 Lesser Black-backed Gull (*Larus fuscus*). Lewis, Sound of Harris, St. Kilda,
 June 1 to 16.
 Herring Gull (*Larus argentatus*) and eggs. Borrera, St. Kilda, June 15.
 Great Black-backed Gull (*Larus marinus*) and eggs. Lewis, Sound of Harris,
 St. Kilda, June 1 to 16.
 Shearwater (*Puffinus anglorum*) and eggs. Soa, June 15.
 Fulmar Petrel (*Procellaria glacialis*) and eggs. St. Kilda, Borrera, Dun, June 15.
 Fork-tailed Petrel (*Procellaria Leachii*) and eggs. Dun, Soa, Borrera, June 15.
 Stormy Petrel (*Procellaria pelagica*) and eggs. Soa, Borrera, June 15.

W. M. E. MILNER.

Nunappleton, Tadcaster,
 February 20, 1848.

A few Words on the subject of Nomenclature in Ornithology.—In thanking you for the ‘List of British Ornithology,’ which you so obligingly sent me, allow me to say a few words on the subject of nomenclature in general, and if you think them worthy of the pages of the ‘Zoologist,’ pray insert them there. I have no doubt that the list you have compiled is one of the best ever put forth, but I think many of the names of the birds in it might be improved. Considerable you may think it to be, but I entertain a hope of one day seeing such a specific name applied to each bird, as at once to distinguish it even from those most nearly allied to it. I hope to see the specific name of the bird taken from some well-known habit, or some peculiarity of formation or plumage. The same remark applies to every branch of Natural History. The contributors to the ‘Zoologist’ profess especially to take Gilbert White as their authority in all relating to Natural History; how then do they, among other naturalists, observe his suggestions with reference to the two species of Mammalia he discovered? It is almost needless to say, not at all. Of the first, his bat, he says, the “large species of bat which I call *Vespertilio altivolans*, from its manner of feeding high in the air.”* Of the other, his mouse, he says, “Linnæus, perhaps, would call the species *Mus minimus*.”† The first of these names is positively given, the second suggested, but in such a way as at once to show what the wish of the author was on the subject.

* Letter xlvi. (Pennant).

† Letter xv. (Pennant).

I think it would show more respect to the memory of the author of 'Selborne,' for naturalists to continue these two excellent names, than to stick a staring 'Whitei' after 'Turdus' and 'Testudo.' With the former of these animals he had nothing at all to do, and the latter he did not discover to be a distinct species from the *T. Græca* of Linneus. To return, however, to birds. I was glad to see that the simultaneous discoverers of the pink-footed goose called it by names so expressive as they did; the bird, whether spoken of with regard to tip or toe, can, by its name only, at once be distinguished from its congeners: but I was sorry the other day at the name applied to the new British duck, and it has already called forth one remonstrance against it in the 'Zoologist.' I hope its discoverers, for it seems to have had several, will pardon me if I venture to suggest its being called *Fuligula* or *Aithya* (of the generic name I am not speaking) *leucoptera*, and white-winged pochard, instead of *F. ferinoides* and Paget's pochard; for in the description of it, it is said that it can be at once distinguished from the dun bird, by the conspicuous white bar on the wing. I think it is Mr. Blyth who, in his edition of the 'Natural History of Selborne,' has suggested some excellent names: among others, I remember that he proposes to call the redstart *Phœnicula albifrons* instead of *P. ruticilla*, which literally translated would be 'red-haired red-tail;' the long-tailed tit also, *Mecistura rosea*, for *caudatus*—although good when joined to *Parus*—becomes nonsense united with *Mecistura*, and the bird's habits hardly warrant the application of *vagans*. I could mention several other cases, but should trespass too long on your attention. I should like to see the subject of names well discussed in the 'Zoologist,' for until it is I despair of seeing an 'Act of Uniformity' passed with respect to nomenclature, or when passed generally observed; and I hope that one of its first clauses will run to the effect that "WHEREAS it has been thought expedient that the names of *V. altivolans* and *M. minimus* be restored, as originally given by White, BE IT THEREFORE ENACTED that they be and are restored." I hope you will understand my meaning, that I think the specific names given to animals by their discoverers should not be observed (much less any others), unless they are indicative of some peculiarity of that animal alone.—*Alfred Newton; Everton, Biggleswade, February 18, 1848.*

Griffon Vulture (*Vultur fulvus*): *correction of a previous error.*—The interesting paper from the pen of the Rev. C. Bury, on the birds of the South of Spain (*Zool.* 1958), reminds me to correct a mistake I made in a notice on the same subject some time ago (*Zool.* 1213). The vultures I saw on the banks of the Guadalquiver were evidently not the Egyptian vulture, which I did not at that time know to be a comparatively little bird. They were more probably the griffon vulture. I saw one of the large vultures stuffed at Tangiers, and another in the Natural-History Museum at Gibraltar, killed there by Sir Robert Wilson's son, if I remember right. As, however, the Egyptian vulture is found in those parts of the world, my mistake is only worth noticing for the sake of distinguishing the occurrence of the large vulture also.—*T. Wolley; 3, Roxburgh Terrace, Edinburgh, February 7, 1848.*

Occurrence of the Rough-legged Buzzard (*Falco lagopus*) *in Suffolk.*—A female, nearly mature, was killed in the neighbourhood of Woodbridge, in November.—*F. W. Johnson; Ipswich, March 1, 1848.*

Occurrence of the Short-eared Owl (*Strix brachyotus*) *near Worcester.*—Two specimens of this bird have lately been shot near Worcester.—*M. Curtler; Bevere House, Worcester, February 27, 1848.*

Occurrence of the Ring Ouzel (*Turdus torquatus*) *in Suffolk.*—A fine male speci-

men of this somewhat uncertain visitor came into my possession in October last; about the same time a second was observed at Blakenham by Mr. H. Haward, of Bramford.—*F. W. Johnson; Ipswich, March 1, 1848.*

[A great number of these birds were observed passing in a south-easterly direction, throughout southern counties, about the middle of October last.—*E. N.*]

Early Nesting of the Robin (*Sylvia rubecula*).—A nest of this species was built in a shed belonging to H. G. Busby, Esq., of Moreton, in the marsh: it was found with five eggs, in the second week of January last. Mr. Busby states, that either the intrusive visits of the curious, or the intensely cold weather that we had in the middle of January, caused the robin to forsake her nest.—*T. Goatley; Chipping Norton, February 16, 1848.*

Enquiry respecting the Egg and Nest of the Thrush Nightingale (*Sylvia Turdoides*).—Many of the readers of the 'Zoologist' would be much obliged to Mr. John Hancock if he would communicate, through the pages of that valuable journal, some account of the egg of the thrush nightingale, which he is stated to have obtained in Northamptonshire. Of what material was the nest constructed? in what situation was it placed? in what locality was it found—wood, open country or hedgerow? In common with many others I shall feel much obliged for answers to these queries.—*D. C. Burlingham; Lynn, 1 mo. 28, 1848.*

[The subject is one of great interest, and I hope Mr. Hancock will comply with the request.—*E. N.*]

Occurrence of the Bohemian Waxwing (*Bombycilla garrula*) at *Earsdon, Northumberland*.—A pair of Bohemian waxwings, in very fine plumage, were shot near Earsdon on the 8th instant.—*T. J. Bold; 42, Bigg Market, Newcastle-on-Tyne, February 19, 1848.*

Occurrence of the Bohemian Waxwing near Yarmouth.—I purchased yesterday, in Leadenhall Market, a very fine specimen of the Bohemian waxwing, which had been killed near Yarmouth on or about the 14th instant: it had been shot while feeding on haws, three of which I found in its throat.—*Richard Strangeways; 70, Chiswell Street, February 23, 1848.*

Occurrence of the Bohemian Waxwing in Suffolk.—Several specimens of this rare bird have been observed in the neighbourhood of Ipswich within the last few weeks: seven of them have been procured.—*F. W. Johnson; Ipswich, March 1, 1848.*

[Numerous instances of this occasional visitor have occurred during the winter; always, however, near the eastern coast.—*E. N.*]

Extreme abundance of the Mealy Redpole (*Fringilla canescens*) near *Ipswich*.—The mealy redpole has been extremely abundant in the vicinity of Ipswich during the autumn and winter, associating with siskins: the common redpole has been at the same time unusually scarce; out of nearly fifty specimens killed or taken alive only one was of the commoner species.—*Id.*

Scientific dictum of Dr. Johnson respecting Swallows.—"Swallows certainly do sleep all the winter. A number of them conglobulate together by flying round and round, and then all in a heap throwing themselves under water, and lie in the bed of a river."—*Boswell's Life of Johnson.*

On the supposed Occurrence of Turkeys' Bones at Lough Gúr.—I wish, through the medium of your pages, to call the attention of your correspondent, Mr. Glennon, to a statement made by him in his paper on the extinct deer and other animals, the bones of which were found at Loch Gúr, in the county of Limerick (*Zool.* 1589), which

appears to require explanation. The passage to which I allude is as follows: "We found the bones of five varieties of the cow or ox, five of the deer, two of the goat, and two of the hog or pig, together with those of the hare or rabbit, swan, goose, duck, turkey, and of several game birds." Now I don't like this discovery of the bones of the turkey. This useful bird was not introduced into England very long before the middle, certainly (I think) not before the beginning, of the sixteenth century; * and it is a native of America. Is there any reason to believe that any species of turkey was indigenous to Ireland? I never heard of any evidence in support of such an opinion; but unless we suppose that it was so, we must either conclude that Mr. Glennon has mistaken the bones of some other bird for those of the turkey, in which case doubt would be thrown upon the accuracy of his other anatomical statements, or that they are really the bones of the turkey, and were therefore, with the other bones, placed in their present position at a period far subsequent to the supposed date of the existence of the giant deer. I was much interested in the discussion of which Mr. Glennon's paper forms part, and certainly came to a conclusion in favour of the theory that the giant deer was contemporary with man; but as accuracy is the very soul of the statements upon which this opinion is founded, I have thought it right to point out the apparent error which exists in the passage in question. May I also inquire, of what nature were the "several game birds" mentioned in the sentence which I have quoted, and to what existing species were they most nearly allied?—*William R. Fisher; Cambridge, February 24, 1848.*

Occurrence of the Houbara (Otis Houbara) in Lincolnshire.—A short time ago I sent a communication to the 'Zoologist' (Zool. 1969), to the effect that I had obtained a male little bustard, which was shot at Kirton Lindsey, in this neighbourhood; but having since become better acquainted with the bustard family, I am convinced of my error, and beg leave to correct it. The following is a description of the bird in my possession. Length 23 inches, expanse of wing 3 feet 8 inches, weight 2½ lbs.; the bill is dark lead colour, compressed at the tip, depressed at the base; irides yellow; the head and throat rufous, mottled with black, with long loose feathers, of a slate colour, hanging over the breast; the chin white; back of the neck white, minutely mottled with brown; the sides of the neck are ornamented with a range of feathers two inches long, about two-thirds of the upper portion black, the lower part white; the back and wing-coverts rufous, mottled with black, with zigzag bars of black across; the quill-feathers black, extending to the end of the tail when closed; under parts white; legs lead colour. On inquiring of Mr. G. Hansley, from whom I received the bird, if he could furnish any particulars respecting it, he sent me the following note. "I shot the bird in a stubble field on Kirton Cliff. I did not see it until it got up within twenty yards of me, and I cannot hear of its having been seen in the neighbourhood before." I feel quite sure that this bird has never been confined: its wings and tail are in the greatest perfection, not a feather broken or dirty: its craw was full of caterpillars, beetles and small snails.—*Alfred Roberts; Brigg, Lincolnshire, January 25, 1848.*

[This bird has been purchased by Mr. T. E. Higgins, of York, and turns out to be the houbara, a well-known North-African species of the bustard family. Mr. G. R. Gray, of the British Museum, has obligingly handed me the following synonyms: it

* About 1530.

is the *Eupodotis undulata* of G. R. Gray, the *Houbara undulata* of G. R. Gray's 'Genera of Birds,' p. 83, the *Otis houbara* of Gmelin, &c. It is well figured in Gould's 'Birds of Europe.' Mr. Gray thinks there can be no doubt that it is one of the specimens brought by Mr. Fraser from Africa.—*E. N.*]

Another extremely large Red Grouse (*Lagopus Scoticus*).—Having just read Mr. Bladon's account of the large grouse shot at Pont-y-pool, I beg to say, that last Thursday week Mr. J. Baron Fielding, of Alershole, near Todmorden, killed a red grouse of the extraordinary weight of 1 lb. 15 ounces.—*T. Webster*; 96, *Ormond Street, Manchester*, March 1, 1848.

Migration of Plovers.—In answer to the query of Mr. Clibborn as to the migration of plovers (*Zool.* 2023)—plovers, both gray and golden, are of a highly migratory nature in this country. The birds observed by his correspondent were doubtless wending their way southwards, either in consequence or in anticipation of the cold weather which occurred about that time. With reference to the power of foreseeing changes of weather, which birds of this class possess to a surprising degree, it would be useful if those who observe such migrations would also send notices of the state of the atmosphere, &c., before and after these movements.—*William R. Fisher*; *Cambridge*, March 2, 1848.

Occurrence of the Common Bittern (*Ardea stellaris*) at *Prestwick Car and Blagdon, Northumberland*.—A specimen of the common bittern was seen at Prestwick Car a few weeks ago: another, or perhaps the same individual, was shot at Blagdon by the gamekeeper of Sir M. W. Riding, Bart., on the 4th instant.—*T. J. Bold*; *Newcastle-on-Tyne*, February 19, 1848.

Occurrence of the Common Bittern at Ipswich.—Several specimens have been obtained in the vicinity of Ipswich. They appear to be as plentiful as last year.—*F. W. Johnson*; *Ipswich*, March 1, 1848.

Occurrence of the White Spoonbill (*Platalea leucorodia*) in *Sussex*.—On the 13th of October, 1847, a specimen of the white spoonbill was shot by a man in the Preventive Service, at Cuckmere Haven. I saw the skin immediately after it had been taken off, but unfortunately had not an opportunity of dissecting the body so as to ascertain the sex. The crest was slightly developed, and I think the bird must have been a young male.—*William Borrer, Jun.*; *Cowfold, Horsham, Sussex*, February 18, 1848.

Occurrence of the Green Sandpiper (*Totanus ochropus*) at *Cambo, Northumberland*.—I yesterday saw a specimen of the green sandpiper which had been shot at Cambo the previous day.—*T. J. Bold*; *Newcastle-on-Tyne*, February 19, 1848.

Egg of the Greenshank (*Totanus glottis*).—In compliance with your request and that of Mr. Fisher (*Zool.* 2024), I send you an accurate drawing and description of the egg of the greenshank, mentioned in a previous number (*Zool.* 2015), as obtained from a bird shot in Sutherlandshire. The egg is larger than that of the redshank by six lines in length and four in breadth: it is of a pale greenish white colour, blotched and spotted with ferruginous and dull red, chiefly at the larger end.—*W. M. E. Milner*; *Nunappleton, Tadcaster*, February 20, 1848.

[I am much obliged by the kindness of my correspondent in this prompt compliance with my wish: I have sent the drawing to Mr. Fisher, and shall be happy to transmit it to any ornithologist who desires it. It is a departure from the present plan of the 'Zoologist' to give coloured figures, and requires further consideration.—*E. N.*]

Variety of Moor-hen (*Gallinula chloropus*).—The following description of a variety of the moor-hen was furnished me by H. Haward, Esq., who killed it at Bramford, near Ipswich, December 16, 1847. "The beak is greenish yellow at the tip, red at the base; irides red; the back, scapulars and upper tail-coverts light chesnut; wing-coverts, tertials, quill-feathers and tail black, edged with chesnut; head grayish black; neck, breast and all the under surface of the body grayish white, inclining to chesnut on the flanks and sides; vent-feathers black; under tail-coverts white; legs and toes green; the webs of the feathers on all parts of the body disunited, having the appearance of hair."—*F. W. Johnson; Ipswich, February 19, 1848.*

Occurrence of the Egyptian Goose (*Anser Egyptiacus*) in *Sussex*.—An Egyptian goose was shot on the harbour at Shoreham on the 5th of January. This bird I examined before it was skinned, and it proved by dissection a male, and by plumage immature. The gizzard contained nothing but fine sea gravel. The chesnut-coloured patch on the breast was much less clearly marked than in the following specimen. Another Egyptian goose, in the fullest adult plumage, was shot on the mill-pond, near the church, in the parish of Shermanbury, on the 11th of January. It was observed to arrive in the evening from the N.W., and rose immediately on being approached by the person who shot it. The bony enlargement at the divarication of the trachea was rather larger and more truly ossified than in the former specimen. The gizzard contained a small quantity of grass, and fine sea gravel similar to that in the first specimen. The feathers of the lower part of the breast and belly were slightly stained with that peculiar rusty tinge by some attributed to the action of sea water. It is somewhat singular that both birds were shot on the same river, the Adur, the first at its debouchment, and the second just above the point to which the tide rises, by the course of the stream perhaps twenty miles as the crow flies, about twelve from the sea. Both birds had every appearance of being truly wild. The weight of the last-mentioned specimen was exactly 5 lbs; the measurement, from the tip of the bill to the tip of the tail, 2 feet 4 inches; and that of the extent of wing, from tip to tip, 4 feet 3 inches.—*Wm. Borrer, Jun.; Cowfold, Horsham, Sussex, February 18, 1848.*

Occurrence of the Velvet Scoter (*Anas fusca*) and *Common Scoter* (*Anas nigra*) in *Suffolk*.—A magnificent male specimen of the velvet scoter was received from Aldborough by Mr. H. Haward, of Bramford, in January last: the same gentleman killed a young female of the same species, in the river Orwell, a few days subsequently. I obtained a fine adult male of the common scoter from Beccles, in February, and have since heard of the occurrence of another on the coast.—*F. W. Johnson; Ipswich, March 1, 1848.*

Occurrence of the Surf Scoter (*Anas perspicillata*) in *Shetland*.—Last summer, in June, as I was collecting through the north part of Shetland, I observed a very rare British visitor, namely, a fine male specimen of the surf scoter, in "Rona's Voe," in company with some red-breasted mergansers. I tried to get a shot at it for three days in succession, but was unsuccessful, as it always got on the wing before we could get within gun-shot of it, and the fourth day I never saw it at all.—*Robert Dunn; Helister, near Weesdale, Shetland Isles, February 18, 1848.*

Occurrence of the Summer or Tree Duck at Tenbury.—A specimen of the summer or tree duck has lately been shot at Tenbury, in Worcestershire.—*M. Curtler; Bevere House, Worcester, February 27, 1848.*

Occurrence of the Black-throated Diver (*Colymbus arcticus*) at *Cullercoats, Northumberland*.—A specimen of the black-throated diver in a very interesting dress, the

black throat characteristic of the summer plumage being nearly complete, was shot off the fishing village of Cullercoats on the 5th instant.—*T. J. Bold* ; *Newcastle-on-Tyne, February 19, 1848.*

Enquiry respecting the Masked Gull (Larus capistratus), and Remarks in reference to the Glaucous Gull (Larus glaucus) and Greater Petrel (Puffinus cinereus).—Mr. Bury has stated (Zool. 1963) that he found the masked gull (*Larus capistratus*) was abundant at Malaga. I shall be greatly obliged to Mr. Bury if he will give us some further particulars of this interesting fact, and say if he found them breeding in numbers together, or if mixed with the common black-headed gull, as it is at present quite undetermined if we are to consider the masked gull as a distinct species, or only an accidental variety of the common black-headed gull. Several of our authorities in these matters are disposed to give up the masked gull entirely as a distinct species, but I am quite undecided myself upon the point, and any information tending to settle the question would be very desirable. Mr. Burlingham enquires (Zool. 2027), what is the distinction between the young of the glaucous gull and the *Larus fuscus*? First, I should observe that the glaucous gull is analogous in size to the great black-backed gull (*Larus marinus*), and has no relation to the *Larus fuscus*, which is the lesser black-backed gull. The young glaucous gull is easily known by any one who has once seen it, by the pale fallow colour of its plumage, and is on the Yorkshire coast called the cream-coloured gull. The young Iceland gull, which is occasionally killed here, is of the same pale colour, but is easily distinguished by its smaller size; but both these gulls are at once distinguished from all others by having the quill-feathers either pure white or cream-coloured, whereas all the other commoner gulls, however they may differ in size, age or species, have their quill-feathers *black*. In the same page, Mr. Milner has recorded another specimen of the greater petrel being killed on the Yorkshire coast, but has called it the *Puffinus Anglorum*, which is the common Manx shearwater, and which in some respects might be called the greater petrel, as we have the *obscurus*, which is still smaller; but I have no doubt, though I have not seen it, Mr. Milner's bird is the true greater petrel (*Puffinus cinereus*) of Mr. Gould,—a bird of which only a few specimens have been recorded as British. I state this from the circumstance of the person from whom Mr. Milner's specimen was originally procured having lately examined my specimens, and pronounced them to be the same as the one referred to; my specimens being the ones first recorded as British, and those from which Mr. Gould made his drawings.—*Arthur Strickland* ; *Burlington Quay, Yorkshire, March 6, 1848.*

[The introduction of the specific name of *fuscus* instead of *marinus* is an error of my own, and not of my correspondent's; this is also pointed out by Mr. Fisher: I cannot account for its occurrence, except that I trusted to memory instead of referring to a list. With respect to the second error, if it be such, a little explanation is necessary. In Doubleday's list the names of the shearwaters stand thus:

SHEARWATER.

Puffinus Anglorum, Ray.

GREY SHEARWATER.

Puffinus cinereus, Steph.

DUSKY SHEARWATER.

Puffinus obscurus, Steph.

And in this way the names stood in Selby, Gould, and all the works published at that time. Subsequently Temminck, in his 'Second Supplement,' says that our bird is *not* the true cinereus, which is a southern species, but the *Puffinus major* of Faber, the two supposed British species being only different states of plumage of the same bird. Having written to Mr. Doubleday on this subject, he tells me that he believes Temminck to be right. It should be observed that both Mr. Gould and Mr. Yarrell express doubts of the British examples being the true *Puffinus cinereus*: I cannot find that between the specimens obtained by Mr. Strickland and those of the common British shearwater the slightest discrepancy in structure has yet been detected; the discrepancies pointed out are those of colour and size, and are much less than occur in the cognate genera of sea-fowl.—*E. N.*]

Occurrence of the Little Gull (Larus minutus) at Belfast.—Mr. W. Thompson records in the third number of the 'Annals of Natural History' the occurrence of two specimens of the little gull, in the estuary at Belfast, in December, 1847: one of them, a beautiful adult specimen, was shot, and was preserved by Mr. Darragh, the curator of the Belfast Museum; the other escaped.—*Edward Newman; February 29, 1848.*

Occurrence of Bonaparte's Gull (Larus Bonaparti) at Belfast.—In the same number of the 'Annals of Natural History,' Mr. W. Thompson records the occurrence of a specimen of this North-American bird on the river Lagan, about a mile above the lowest bridge at Belfast, on the 1st of February last. It is described in the 'Fauna Boreali-Americana,' p. 425: in this work it is stated to be common in all parts of the fur countries, where it associates with the terns, and is distinguished by its shrill and plaintive cry. Audubon observed it at Cincinnati, and shot one specimen at the mouth of the Arkansas: afterwards he saw it in abundance in Chesapeake Bay in April, and at Passamoudy in May. In the latter place it was so abundant that he killed seventeen with one discharge of a double-barrelled gun. Mr. Thompson's Irish specimen is 13 inches 9 lines in length, and the tips of the wings pass the tail 1 inch 9 lines. The beak is 1 inch 1 line in length measured from the forehead, $2\frac{1}{2}$ lines in breadth and $3\frac{1}{2}$ lines in length; it is black, and rather paler at the base beneath: legs and feet pale flesh-colour. The bird weighed $5\frac{1}{4}$ ounces: its stomach contained the remains of two specimens of opossum shrimp, a little vegetable matter, and some small pebbles. Mr. Thompson has given the following detailed account of its plumage. "Head white, excepting the usual blackish seasonal ear-spot of Xema; a little of this colour before the lower portion of and beneath the eye, and a little above it posteriorly—also blackish, mixed with white on the nape: thence to the back very pale pearl-gray: back or mantle ('manteau,' *Temm.*) pearl or pale bluish gray. Tail pure white, except from about a line inwards from the tip, where a band of black, nearly an inch in breadth, appears. The wings exhibit generally the bluish gray of maturity, but have clove-brown markings on the bastard wing, lesser coverts and scapulars. Anterior border of the wing white from its shoulder, for the breadth of four greater primary coverts. Primaries exhibiting in degree considerably more black than the specimen described in 'Faun. Bor.-Amer.'—outer margin of the first entirely black; of the second, from the tip upwards for $5\frac{1}{4}$ inches, black, thence white; of the third, from the tip upwards, black for 4 inches next the shaft, for $3\frac{1}{4}$ inches on outer margin. Remainder of the primaries terminated with brownish black, except at the extreme tip. On the third, the first indication of white appears in a mere line of that colour, thence it becomes gradually larger in size and deeper in shade to the seventh, where it assumes the pearl-gray of the lower portion of the same feather. The black becomes

more and more tinged with brown from the first primary to the last; the light-coloured tip, on the contrary, becomes gradually of a deeper shade from the third to the last. Shafts of all the primaries white, except the upper portion of the first, which is dusky. Black appears on the inner web of the three longest primaries, much lessening, both in length and breadth, from the first to the third: in the first it occupies 4 inches in length, and its greatest breadth from the shaft is 4 lines $1\frac{1}{2}$ inch. The secondaries exhibit a large space of blackish brown towards the tip, within their pearl-gray margins: the tertiaries have more or less of blackish brown irregularly disposed towards their tips. Under surface of wings entirely white, except that the portions of the primaries, secondaries and tertiaries, which are dark above, appear grayish. Entire under surface of body, from the bill to the extremity of the under tail-coverts, white, of an extremely faint roseate hue."—*Id.*

Occurrence of the Glaucous Gull (Larus glaucus) and Iceland Gull (Larus leucopterus) in Shetland.—In the latter part of November, 1847, a friend at the north part of Shetland sent me word that some gulls, which he thought were called 'burgomasters,' were attracted to a locality there by some whales which had been driven ashore. I went over, and remained there till the 15th of December, by which time I had procured one immature and four adult specimens of the glaucous or large white-winged gull (*Larus glaucus*) and one adult specimen of the Iceland gull (*Larus leucopterus*). I sometimes did not see one of these birds for two or three days together, but as the ravens were very numerous, feeding upon the whales, I filled up my time by shooting what I could of the finest of them. It is remarkable, although I have resided nearly six years here, that I never had the pleasure of seeing either a mature glaucous gull or a mature Iceland gull before, but nearly every winter I have shot one or two immature birds of both kinds. The appearance of the adult birds this season I should think is owing to the very severe gales of wind we have had, and which must have driven them here. Early in January I again visited the place where I shot the glaucous gulls, and got four more adult birds and one immature Iceland gull; and I went over again in the early part of this month, but only procured one adult specimen and one immature Iceland gull. I do not expect to get any more this season, but if I do I will acquaint you, and shall be glad if you consider these observations worthy of insertion in your valuable journal.—*Robert Dunn; Helister, near Weesdale, Shetland Isles, February 18, 1848.*

Young of the Glaucous Gull (Larus glaucus).—In answer to Mr. Burlingham's inquiry respecting the young of the (lesser) black-backed and glaucous gulls (*Zool.* 2027), the most obvious distinction between these species is, that the primary quill-feathers in the wing of the latter are *never* dark, in the former they are *always* so. It is true that in the young of the two kinds the colours of this part and also of the whole body in some degree approximate, but I think never sufficiently to create confusion. The tinge of brown which exists in the quill-feathers of the glaucous gull is moreover of a yellower cast than in the (lesser) black-backed species, and the same remark applies to the colour of the whole body. Is not your correspondent's bird the young of the *greater* black-backed gull (*L. marinus*)? The adult glaucous gull is surely a much larger bird than the adult lesser black-backed gull.—*William R. Fisher; Cambridge, February 25, 1848.*

Note on the Black-backed and Glaucous Gulls.—In reply to Mr. Burlingham's inquiry (*Zool.* 2027), respecting the difference between the young of the lesser black-backed gull (*L. fuscus*) and that of the glaucous gull (*L. glaucus*), I imagine that in

the young, as in the adult, the ends of the quill-feathers of *L. fuscus* will be found to be black and white, while in *L. glaucus* they are white altogether, or at least of the same dusky colour as the rest of the bird.—*Beverley R. Morris, A.B., M.D.; York, March 8, 1848.*

Inquiry respecting Larus maximus.—The Rev. G. Gordon, in the Fauna of Moray (Zool. 515), writes “black-backed gull (*L. maximus*).” What gull is here intended to be specified? I presume the lesser black-backed gull (*L. fuscus*), as he afterwards mentions the great black-backed gull (*L. marinus*).—*Id.*

Capture of Sea-fowl near the North Cape by Foxes.—“In the vicinity of the North Cape, where the precipices are almost entirely covered with various species of sea-fowl, the foxes proceed on their predatory expeditions in company; and previous to the commencement of their operations they hold a kind of mock fight upon the rocks, in order to determine their relative strength. When this has been fairly ascertained, they advance to the brink of the precipice, and, taking each other by the tail, the weakest descends first, while the strongest, forming the last in the row, suspends the whole number, till the foremost has reached the prey. A signal is then given, on which the uppermost fox pulls with all his might, and the rest assist him as well as they can, with their feet against the rocks: in this manner they proceed from rock to rock, until they have provided themselves with a sufficient supply.”—(Brooke’s ‘Travels to the North Cape.’) “This story,” says the reviewer of the above work (‘Quarterly Review,’ October, 1823, p. 132) “is of Iceland manufacture, and is told by Dr. Henderson; but we have seen a version of it in an old French Voyage to the East Indies, where it is told, with admirable gravity and effect, of a party of rats, who [which] combined in this way to steal eggs out of the bung-hole of a barrel.” I have transcribed these passages, which accidentally caught my eye this morning, because the story related in them (and especially the French version of it) bears such a striking resemblance to an anecdote related to your correspondent Mr. Bury, and given by him in his amusing ‘Notes on the Mammalia of the Isle of Wight’ (Zool. 787), detailing the manner in which eggs are removed by rats up a flight of stairs, that I can hardly doubt their being derived from the same source. It is well known that many stories now current amongst us, especially such as are used to frighten or to amuse children, though often modified to suit our times and institutions, are of Northern or Eastern origin; and as Mr. Bury does not appear to be quite certain that the person from whom he had this account was an eye-witness of the fact, I have little hesitation, in the absence of such certainty, in believing the story to be another version of the Icelandic tale above related.—*William R. Fisher; Cambridge, February 25, 1848.*

Ornithological Notices in Norfolk for the month of February, 1848.—Early in this month several more specimens of the waxwing were obtained in various parts of Norfolk, and several examples of the hooper (*Cygnus ferus*) have occurred. A young male peregrine falcon was observed to frequent the neighbourhood of Whitlingham for nearly a month, and was killed at that place on the 11th instant. During the latter part of the month several specimens of the great tit have been observed, apparently performing a (returning) migratory movement, similar to that observed in the beginning of last year in the case of the marsh tit (Zool. 1691, 1701).—*J. H. Gurney, W. R. Fisher; March 2, 1848.*

On the Partial Migration of Birds.—The county of Durham, though small, yet, from the different altitudes of the land, the rich variety of hill and dale, clothed with various plants, each sustaining many different species of insects, of course gives us

much feeding-ground for birds at different seasons of the year ; on that account I have for years watched with pleasure the migratory habits of birds : therefore if you think the following observations will any way elucidate the subject of migration, and the enquiry of your correspondent about the plover family (Zool. 2023), it is at your service. The whole western part of the county of Durham is a range of very high hills, covered with heath ; and of course this is the golden plover's summer residence. Here they remain until late in October or the early part of November, when they descend to the amphitheatre of hills and high table land around Bishop's Auckland, which are principally sheep-walks, where for sometimes three weeks or a month (much depending upon the season, whether frosty or open weather), at the gray of morning or in the evening hour, their shrill whistle may be heard. In the day-time they are frequently seen in company with the peewits, forming large flocks, but after about the time named above they leave us for the coast, which is low, especially the south-east portion, forming a fine champaign district for many miles inland, and where the snow seldom lays for more than a few days, frequently not many hours : on this ground, along the beach, or on the muddy flats formed for some miles along the Tees, by the flow and ebb of the tide, they spend the depth of winter, and of course are only partial migrants (that is, *with us*), for I have got them on the coast at that time of the year. The first I observed this season was on the 11th of February, but now that the hills have cast off their snowy covering these birds have passed on westward. The curlew, whimbrel, starling, and all our indigenous thrushes, the blackbird excepted, are partial migrants when the winter is severe. While on the subject of migration, may I be allowed to call attention, through your valuable journal, to the affirmed migratory habits of the female chaffinch. Both White and Selby say the hen chaffinches migrate, while the males, I suppose being either less Quixotic, or possessing in a smaller degree the perceptive faculties, and of course not being so well qualified to make geographical discoveries, stay contentedly at home : they cannot be guided by the same laws which are generally allowed to govern other birds, that is, the want of food ; for if the males and our other indigenous finches can subsist through winter, we may ask, why not the females also ? Is it not more likely that the flocks seen by these observers consisted of both sexes ? The adult males denuded of their summer dress might easily be mistaken for young males, whilst the young males may have been classed with the females. I think that none of our indigenous birds exhibit a greater contrast between their summer and winter dress, for they not only lose that beautiful bloom in winter which makes them so conspicuous to the most casual observer, but their markings are very faint until the latter part of February or March, and it is not until April that they attain the full bloom which makes them the ornament of our hedge-rows. The latter part of last April and the beginning of May, as will be remembered, was very cold and wet, which caused us to have a very limited number of some of our summer visitants, especially the swallow family, the redstarts, the wheatear and the pied flycatcher (I only heard of a single pied flycatcher having been seen), while the spotted flycatcher, the whitethroat, the grasshopper warbler and most of our other visitants abounded.—*J. Duff ; Bishop's Auckland, March 13, 1848.*

[My correspondent will perhaps reconsider this explanation. Mr. Selby says, "the males remain and are met with during winter in immense flocks." The converse of the explanation is therefore required. If a change in plumage has taken place, it must be that females have assumed the male dress in the winter. About London we see both sexes all the year round.—*E. N.*]

Occurrence of the Stormy Petrel (Thalassidroma pelagica) at Hailsham.—A specimen of this bird was picked up in the church-yard of the above place, during the gale of the 26th ult. It was blown against the spire, and was unable to rise from the ground.—*James B. Ellman ; Battel, March 11, 1848.*

Frog-eating in England, and Inquiry respecting the Edible Frog (Rana esculenta).
—I shall be obliged by thy informing me, through the medium of thy interesting periodical, whether the species of frog sometimes used in France as food is commonly found in England. I have been accustomed to suppose that it is unknown among us, or that it is very rarely met with. I make the inquiry because of the following circumstance. I was taking a walk yesterday morning, by the side of a large artificial piece of water that serves as a reservoir to supply one of the canals in our neighbourhood, and had stopped to converse a few moments with the man who looks after the sluices, &c., when he suddenly exclaimed, "There goes the Frenchman again, he's come to get frogs!" or some very similar expression. I saw a man and woman at a distance, walking slowly by the side of a channel that carries off the waste water from the reservoir; and having my curiosity excited by what I had just heard, I learned from the man I was conversing with that they were French people, and that they often came there to get the frogs out of the ditches, &c., and that they sometimes took away with them a reticule-basket full. I walked over directly towards them, and when I reached the spot I found the man had crossed a hedge into a neighbouring field, where he was raking in a cow-pond with a long-handled rake. I saw him in a short time draw out several of the reptiles he was in search of, and toss them over the hedge to the woman. She took them up, and, severing the fore quarters from the hinder ones with what appeared to be a heavy knife, she stowed the hind quarters in her basket, leaving the fore part to struggle on the ground. When I drew near, and stood to look at them, they ceased from their labours, evidently not liking to be observed. When I looked round me, on the bank of the water-course where I stood, I saw abundant evidence of the successful "hunting" of this couple on previous days. The ground was strewn with the rejected portions of their prey. The separation of the parts had been made just behind the fore legs, so that the head, shoulders and fore legs were thrown away, while the rest of the body and the hinder legs were carried off—I suppose for food. I examined a number of the heads and legs, and can only say, that they were undoubtedly of the same species that swarms in almost all our road-side ditches and ponds in the spawning season. The French man and woman were a well-dressed, well-fleshed and well-looking couple, with nothing like an appearance of poverty or want about them, so that I cannot suppose they sought such food from any other cause than choice. The circumstance has certainly occasioned me some surprise, and I think it is one that may also interest some of thy readers.—*William Lean ; Birmingham, 3rd of 3rd mo., 1848.*

[For a figure of the so-called edible frog my correspondent is referred to p. 467 of the 'Zoologist,' and for other remarks as to the occurrence of the same species in England to pp. 393, 677 and 727. The species alluded to in the places cited is not uncommon in certain parts of England, France, Holland, Belgium and Germany. It is the dictum of technical naturalists that this animal is exclusively that in which our

neighbours were once said to delight, but out-of-door naturalists have found no proof of the assertion ; in fact, on the contrary, the common frog (*Rana temporaria*) is that which is served occasionally as a Parisian dish. It is doubtless a fact that some naturalist has seen the real esculenta caught for this purpose, and so has applied the maxim *ex uno disce omnes* ; but the result of a good deal of enquiry on the subject, in the markets and hotels of Paris, convinced me that there was no selection made of either species, and that the captors did not even know the difference between them.—*E. N.*]

Tameness and Voracity of a Toad.—Staying one summer, when a boy, not far from the town of Dorking, in Surrey, I observed that three or four currant-bushes, trained against a wall at the end of the garden, were almost entirely stripped of their leaves by the ravages of a small green caterpillar, which swarmed all over the branches. Perceiving, at the same time, a toad, sitting very quietly in a corner, at no great distance, it occurred to me to try if he would eat them. Accordingly, having collected a large quantity, I presented him one on the end of a short stick, and was much pleased to see him put out his long tongue, draw the caterpillar in, and swallow it greedily. I continued to feed him for about a quarter of an hour. Taking a turn in the garden the following day, about the same hour, I perceived the old fellow in the corner again, and presented him with a number of caterpillars as before. The two next days he returned to the same place, and I fed him again ; but the next, in consequence of the stock of caterpillars being exhausted, I was unable to give him his usual repast. The following day also he was there again, but receiving nothing he came no more. It was always about the same hour in the afternoon that he was at his post, as if he had some idea of the time of day when I should come to feed him.—*J. G. Leadbitter ; 6, Frederick's Place, Gray's Inn Road, March, 1848.*

Snakes destructive to Mice.—When grouse shooting with my brother, upon the Durham Moors, he shot a snake which was basking in the sun, and which, from its apparent fulness, I was induced to have opened by my gamekeeper, who found within it three mice lying head to tail, the head having in every instance been swallowed first. We particularly noticed the state of decomposition in which the mice were, and concluded that they had been swallowed on three successive days, and that a mouse per day might be the usual portion of food : this, however, is mere conjecture. Mice upon dry moors are sometimes numerous, but I suppose that snakes also feed upon young birds.—*Isaac Cookson ; Meldon Park, near Morpeth, Northumberland, February 22, 1848.*

Voracity of Fishes.—“This preparation will serve as an illustration of the voraciousness of their habits. Here is the skeleton of a frog-fish, two and a half feet in length, in the stomach of which is the skeleton of a cod-fish, two feet long ; in whose stomach again are contained the skeletons of two whittings of the ordinary size ; in the stomach of each whiting there lay numerous half-digested little fishes, which were too small and broken down to admit of preservation. The frog-fish, with all these contents, was taken last summer by the fishermen, and offered for sale in the market as an article of food, without any reference at all to the size of its stomach, which to them is an every day appearance.”—*Dr. Houston's Lecture before the Zoological Society of Dublin.*

Occurrence of the Mullet (Mugil chelo) in great Numbers at Coldingham.—"During the past and beginning of the present week, a rather singular circumstance occurred at Coldingham shore, in the appearance of a large shoal of fish, very rare in this locality, of the mullet species. An unusual number of fish were observed swimming about for several days, going and returning with the tide, but no particular notice was taken of them until Monday last, when they set in very thick, literally crowding the harbour. The entrance was secured by nets, and a large quantity of the fish caught, and conveyed fresh to the Edinburgh market. They have not since been seen, and it is believed have not appeared on any other part of the coast. The case is not altogether without a precedent in this quarter, a somewhat similar occurrence having taken place about ten years ago, a little farther to the west.—*Berwick Advertiser*, April 10, 1847.

Occurrence of the Long-tailed Shark (Carcharias Vulpes) near Berwick-on-Tweed.—"On the 30th of July, 1846, a long-tailed shark was captured in our bay. It had got entangled in a herring-net, and killed itself in its efforts to escape. None of our fishermen had ever seen the fish before, which may therefore be considered amongst the very rarest of our visitants.

"The total length of the specimen was eleven feet and an inch, and the circumference in front of the dorsal fin, where the body was thickest, was three feet two inches. The length of the body was a little upwards of five feet six inches, being about half an inch shorter than the tail; and it was this disproportionate length of the tail that gave to the creature its peculiar and bizarre appearance. The body was fusiform, even, and very smooth to the eye, with a silky glossiness, of a leaden colour, paler on the sides, and white marbled with bluish on the ventral surface. Although apparently very smooth, yet the resistance to the finger, when it was drawn from the tail forwards, proved that the skin was finely shagreened. The tail was shaped like a straight sword. Its origin was marked by a deep incisure or fosse in the back, and from this it tapered gradually to the tip, where it is obtusely pointed; and just in front and beneath the termination there is a small lobe. A sort of narrow fin ran along the inferior edge, becoming broader towards the base or origin, where it dilated into a falciform lobe.

"Snout obtusely pointed; nostrils small, half-way between the snout and mouth; mouth inferior, lunate; teeth proportionally small, triangular, cuspidate, smooth; eye circular, an inch in diameter, dark, with an elliptical pupil; pectoral fins falciform; dorsal fin with a dilated base prolonged behind into a lobe; ventral fins meeting below on the mesial line, and concealing the vent; adipose fin small, rhomboidal, elongated and pointed posteriorly; nearly opposite, but a little posterior to this fin, on the ventral line, there is a small anal fin.

"Length from the snout to the eye four inches; length from the snout to the insertion of the dorsal fin two feet seven inches; length of dorsal fin one foot; length of the pectoral fins one foot eight inches; breadth at their base ten inches; breadth of the tail at its origin seven inches; length of its large lobe eight and a half inches."—*Dr. Johnston, in 'Proceedings of Berwickshire Naturalists' Club.'*

Curious Anecdote of a Pipe-fish (Syngnathus acus) and small Crustaceous Animal.—"We had last summer, 1846, an opportunity of observing the capability of the fins and tail, in enabling the fish to achieve a movement of a very unusual kind. We had taken in a towing-net one of the pipe-fishes (*Syngnathus acus*), which had been swimming near the surface, and had placed it in a basin of sea-water. One of the long-

bodied Crustacea, which are abundant during fine weather, and had been captured at the same time, was placed in the same vessel. It was a species of Gammarus, and about an inch in length. The Gammarus would seem to have got tired of swimming, and for a resting-place it fixed itself on the back of the pipe-fish close to the tail. The fish had not been a consenting party to this arrangement, and soon evinced its dissatisfaction by lashing the tail with great violence on each side, to dislodge the intruder. He, however, kept his hold, and so soon as the fish ceased for a few seconds, he crept a little further up the back, as if aware that the velocity of movement was less near the centre of the circle. The fish lashed the water again with great violence, but without any good result; and so soon as it stopped, the Gammarus crept up a little nearer to the head. The Gammarus seemed to be the marine prototype of the Old Man of the Mountain, whose pertinacity, in retaining his place on the back of Sinbad the Sailor, is a portion of that lore of our boyhood that is never afterwards forgotten. The pipe-fish then changed its tactics. Instead of lashing with its tail, it gave to its whole body the kind of movement it might have had if fixed on a Lilliputian spit, and in the act of being roasted. The body was made to revolve round and round on its longitudinal axis; but the Gammarus still held on, and, at each interval of rest, made a few steps further in advance. This was more than once repeated, until, pitying the poor pipe-fish, we removed the cause of its annoyance to another vessel.—*Patterson's 'Zoology for Schools,' p. 221.*

Occurrence of Vanessa Antiopa at Cromer.—I caught one specimen of this rare butterfly hanging on to a wall. He seemed to be in a state of stupor, for when I took him, which I was obliged to do with my fingers, not having any net in my hand at the time, he did not make any attempt to escape, although he was decidedly alive at the time. I thought at first that he had only just emerged from the chrysalis, but that can hardly have been the case, since his wings were quite stiff, and had got rather dirty. I took him in the beginning of September, 1847.—*A. D. Michael; 9, Red Lion Square, March 1, 1848.*

Occurrence of Sphinx Druræi at Bishop's Auckland.—I have obtained a fine specimen of Sphinx Druræi. It is generally supposed to be an American species, and my specimen was taken in a timber-yard near this place.—*Joseph Duff; Bishop's Auckland, March 13, 1848.*

[The locality rather favours the idea of importation in this instance.—*E. N.*]

On rearing Acherontia Atropos.—In the month of July, 1846, ten fine larvæ of this species were brought to me. I placed them in a large flower-pot, nearly full of soil, in a hot-house, and in less than a week they had all burrowed. In the beginning of August I got them all out from underneath the soil, in the chrysalis state, and put them on the surface. I kept the soil very moist, and about the 15th of October one of them changed, but produced an imperfect moth. Fancying this was caused from the soil being too damp, I did not water it for a day or two, and then began again, though not so much as before. By the 26th of October I had seven beautiful and perfect specimens of the moth, the other two being cripples.—*M. Curtler; Bevere House, Worcester, March 1, 1848.*

On rearing Plusia Iota.—I have read with much interest the remarks of the Rev. William Turner (*Zool.* 2033), on the difficulty of rearing this moth from the caterpillar,

and although I have never made any experiments with this species, yet I have frequently lost the larvæ of others in a similar manner. I have always thought that my failures were caused by the caterpillars having been attacked by a parasitical fungus, and my opinion is confirmed by a Report made to the Entomological Society of France,* on the investigations into the nature of the muscardine affecting the silk-worm, by M. Guérin-Ménéville, who had been requested by the Minister of Agriculture and Commerce to apply his entomological knowledge to the subject, in order if possible to discover a remedy for the disease. Of this Report I subjoin an epitome. The true nature of the muscardine became known by the memoirs of Messrs. Audouin, Turpin and Boisduval. It is a fungus developed in the parenchyma and cellular tissue of the caterpillar. It spreads with such great rapidity that its progress is sometimes visible to the eye: it is contagious and epidemic, and always fatal. It is not confined to the silk-worm, nor to caterpillars reared in confinement, but has been observed in many at liberty. It is almost always after the last moult, and about the time they are ready to change to pupæ, that the caterpillars become affected. Sometimes, in different species of larvæ, it presents a different appearance, though it is believed there is really but one species of it; but one constant character has always been observed, namely, that caterpillars which have died from this cause become very dry and brittle, and a very slight pressure will break them into pieces, when the interior of the body appears whitish, powdery and mouldy. It has always been found to exist in greatest abundance when large numbers of caterpillars have been placed in a small space, and it is thought that the vitiation of the atmosphere by their excrements has been a fertile source of its appearance and extension. The curative means to be adopted are not given. This account does not agree exactly with that of Mr. Turner, for he says that his caterpillars "turned almost black, the intestines seemed to decompose, and they hung like little bags of fluid;" neither does he say that they afterwards became dry and brittle. With these exceptions, the symptoms he details seem to agree with those of the muscardine, and I believe that this or an analogous disease caused the death of such of his caterpillars as attained their full growth. In conclusion, I hazard an opinion that to this disease is owing the scarcity of many species of our Lepidoptera.—*J. W. Douglas*; 19, *Nelson Square, Peckham, March 1, 1848.*

Occurrence of Nyssia hispidaria in abundance near Huddersfield.—I have captured during the last two days about seventy specimens of *Nyssia hispidaria*, upon the stems of oak trees. Most of the trees which I got them upon were covered with lichen and moss. I found the greater part of them about five o'clock in the evening.—*John Collins*; *Kirkburton, Huddersfield, February 26, 1848.*

Remarks on the Apterous Females of our British Geometræ.—Though we find that some two or three of the late autumnal *Geometræ* have apterous females, the great bulk of them make their appearance during the winter and early spring. The reason of their being so restricted in their powers of locomotion may probably find its solution in the less erratic flight of their mates, whose movements at the fall and opening of the year are necessarily more sluggish than we observe to be the case with those species that appear during the warm evenings of May and June. The females of the *Hiberniæ* generally are apterous, or partially so. Of the group, *progemma* has the rudimental wings the most conspicuous; they vary as much in tint as in size, presenting

* 'Annales de la Société Entomologique de France,' 1847, tome v. bulletin p. lxx.

all the gradations of shade from pale stone-colour to ashy-brown. The double strigæ, which are common to all the wings, are usually distinct, being considerably darker than the general ground colour and somewhat undulated. *Rupicapraria* ranks next for size of wings, the anterior pair of which have a single broad purplish brown bar in the centre, which passes into a slender striga on the secondary wings. The colour is whitish ash, with a pinkish hue. The abdomen is darker and glossy, and the tail slightly tufted. *Aurantiaria* makes the next best show, but the wings are still more rudimentary than in either of the two already described. The insect is dark umber-brown, the scales on the rings of the abdomen being dotted with dirty yellow. The upper wings are traversed by two dark bands; on the lower, two are likewise visible with the microscope. The little rarity *leucophæaria* is very nearly, if not entirely, apterous. Its colour is gray, and its general outline is so distinct from others of the group that it is readily distinguished. It is found, like most of its congeners, on the boles of oaks, but from its hiding in the crevices of the bark it is very seldom met with. *Defoliaria*, an autumnal species, is entirely apterous. Its colours sufficiently characterize it. It is yellow, beautifully mottled with scales of shining black. It is decidedly the largest of the apterous *Hiberniæ*. *Anisopteryx æscularia* is by far the rarest of these wingless creatures. As its specific name implies, its caterpillar feeds on the horse-chesnut, and the perfect insect is to be found in March on the boles of this tree. It is perfectly apterous, without even the rudiments of wings. Its colour is light brown; its abdomen, which is a little darker, is furnished with a *brush*, its best characteristic. The largest of our apterous females is *Phigalia pilosaria*. It is party-coloured: the upper side of the abdomen has a rufous tinge, with dark irrorations; the under side is whitish, thickly sprinkled with dusky atoms. Small rudiments of wings protrude on each side of the thorax. Next in size are the *Nyssia*, the one (*zonaria*) being strictly littoral, the other (*hispidaria*) not uncommon in our oak-woods during the month of February. In colouring, as also in size, *hispidaria* bears some resemblance to *pilosaria*, but its slightly pectinated antennæ and its thick hairy legs readily distinguish it. It wants, moreover, the irrorations that characterize *pilosaria*. Its ally, *zonaria*, is blackish, very pilose, having the rings of the abdomen margined with orange. The wing-scales are more prominent than in *hispidaria*. The last and commonest of the apterous females is *Cheimatobia brumata*, which usually appears abundantly in November and December. I found last year between thirty and forty on a single evening. It is likewise the smallest. Its colour is glossy brown, the wings being far less produced than those of its companion on the same hedge, *rupicapraria*, and wanting the roseate hue which renders the latter such a favourite with collectors.—*Peter Incbald*; *Storthes Hall, Huddersfield, February 18, 1848.*

Correction of an Error at page 1988.—I find I have committed a great error in giving *leucomelana*, *Guenée*, as synonymic with *Weaverana*, *Dale*. I should have said *ochromelana*, *Guenée*, to which insect the description applies. *Leucomelana* of *Guenée* is the *betuletana* of *Haworth*.—*H. T. Stainton*; *Mountsfield, Lewisham.*

Coriscium quercetellum and *C. alaudellum* of *Zeller*, described many years previously by *Haworth* as *Gracillaria substriga* and *G. cinerea*.—Adverting to my remarks (*Zool.* 1995) on the registration of new species of native Invertebrata, I beg to call attention to an important fact, frequently lost sight of in the anxiety of naturalists to register their apparent novelties, that is, they are *novelties* occasionally *in name alone*, so difficult has the extrication of synonyms become: as examples, I would adduce the recent notice of *Coriscium quercetellum*, *Zeller*, and *C. alaudellum*, *Dup.* (*Zool.* 1985), with

the remark "These two *Tineæ* are unrecorded as British." Now the former of these insects is the *Gracillaria substriga* of Haworth (Lep. Brit. 532), and the latter *G. cinerea* of the same author (Lep. Brit. 530), both of which have been frequently taken at Coombe Wood, and in other places in the vicinity of London. Haworth's descriptions were made and *in type* so long back as 1812 (as appears by an original proof-sheet of the fourth part of Lep. Brit., in my library, which, with other like portions of the same work, has been in my possession upwards of thirty years), although, from circumstances, not published till 1829, ten years anterior to Zeller's name, which appeared in the *Isis* in 1839, and nine years before the appearance of Duponchel's, in 1838; and in the interim Haworth's name had reappeared in my *Illustrations* (Haust.) iv. 364-5, in 1834. The third species, *C. citrinellum* (Fish. v. R. 1839), is synonymous with my *Gracillaria leucapennella*, *Illust.* (Haust.) iv. 368, 1835, the *G. sulphurea* of Haworth's MSS. and some cabinets.—*J. F. Stephens; Eltham Cottage, near Brixton, March, 1848.*

A Monograph on the British Argyromiges. By H. T. STANTON, Esq.

It is not my intention to enter into the generic characters of the insects I am about to describe: they are divisible into several very distinct groups, which the Continental Lepidopterists have made into genera. Zeller, who appears to have paid more attention to them than any other entomologist, divides them into *Lithocolletis*, *Opostega* and *Lyonetia*; the last, however, contains many of our *Microsetiæ*.

Lithocolletis has the back of the head rough, the antennæ simple, with the basal joint thickened; and has an ocellated spot at the apex of the anterior wings, which are in most cases adorned with brilliant metallic colours.

Opostega has the basal joint of the antennæ very thick, and hollowed in the form of a spoon on the outside, so that when in repose these hollows in the antennæ cover the eyes of the insect.

Lyonetia has the antennæ as in *Opostega*, but the head is provided with a tuft of hair, whereas in *Opostega* it is smooth.

These insects, which are all, with very few exceptions, double-brooded, are found on palings and trunks of trees, or beaten out of hedges and bushes, from the middle or end of April to the beginning of June, and again in August and September. Some few species appear to last all the summer through. The larvæ of all the genus *Lithocolletis* of Zeller, of which the metamorphosis is known, have only fourteen feet; they are miners, and feed on the parenchyma of leaves, and change therein to the pupa state. The larvæ of some of the genus *Lyonetia* of Zeller live *on*, not *in*, the leaves, and have sixteen feet.

I have divided the *Argyromiges* into several sections.

Section A.—*Anterior wings metallic or very glossy, with paler fasciæ or comma-shaped marks on both margins.*

- | | |
|------------------|----------------|
| 1. lautella. | 4. cavella. |
| 2. Schreberella. | 5. Spinolella. |
| 3. ulmifoliella. | 6. connexella. |

- | | |
|----------------------|--------------------|
| 7. Emberizæpennella. | 14. elatella. |
| 8. tristrigella. | 15. pomonella. |
| 9. Frœlichiiella. | 16. pomifoliella. |
| 10. trifasciella. | 17. securiferella. |
| 11. Messaniella. | 18. Junoniella. |
| 12. quercifoliella. | 19. alnifoliella. |
| 13. ilicifoliella. | |

Section B.—*Anterior wings white, with darker fasciæ or lines.*

- | | |
|-----------------|-----------------|
| 20. Cramerella. | 23. hortella. |
| 21. tenella. | 24. sylvella. |
| 22. roborella. | 25. comparella. |

Section C.—*Anterior wings dark, with paler markings from the costa and inner margin, but without the metallic lustre which adds so much to the beauty of Section A.*

- | | |
|---------------------|------------------|
| 26. corylifoliella. | 27. Demaryella.* |
|---------------------|------------------|

* Sections A, B and C form the genus *Lithocolletis* of Zeller, which that author thus subdivides.

A. The fringe of the anterior wings forms a small tail.

a. The small tail appears to come *out* from the tip of the wing.

1. roboris. 2. *scitulella*.

b. The small tail appears to come *down* from the tip of the wing.

3. Saportella. 4. *Amyotella*. 5. *distentella*. 6. *ilicifoliella*.
7. *delitella*.

B. The fringe of the anterior wings does not form a small tail.

a. At the base of the anterior wings is a whitish streak.

8. Rajella. 9. elatella. 10. *insignitella*. 11. lautella. 12. pomifoliella. 13. pomonella. 14. *salictella*. 15. *Mannii*. 16. ulmifoliella. 17. cavella. 18. Junoniella. 19. *fraxinella*. 20. quercifoliella. 21. Messaniella. 22. betulæ. 23. connexella. 24. *scopariella*. 25. Alniella. 26. *Heegeriella*.

b. At the base of the anterior wings is no whitish streak.

a. The anterior wings have sharp, but no metallic markings, and at the tip a bright streak or point.

27. Cramerella. 28. tenella. 29. *abrasella*. 30. acerifoliella.

β. The anterior wings metallic, with clear metallic fasciæ and marginal streaks.

31. Emberizæpennella. 32. Frœlichiiella. 33. *Kleemannella*.
34. ulminella.

γ. The anterior wings powdery, with a few sharp markings, and nearly without splendor.

35. Heydenii. 36. *agilella*. 37. *pastorella*. 38. *tremulæ*. 39. *populifoliella*. 40. comparella. 41. *acaciella*.

Those in italics have not yet been detected in this country, though they probably will eventually reward the researches of the diligent.



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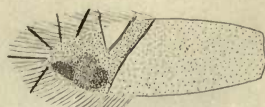
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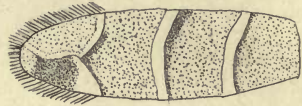
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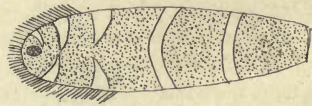
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Section D.—*Anterior wings with several radiating dark lines in the fringe at the apex.*

- | | |
|---------------------|----------------------|
| 28. scitella. | 30. cerasifoliella.* |
| 29. spartifoliella. | |

Section E.—*Anterior wings long and narrow, caudate at the apex.* (They do not at first sight, however, present this appearance, the long cilia giving a regular form to the extreme margin of the wings).

- | | |
|-----------------|-------------------|
| 31. Clerckella. | 32. padifoliella. |
|-----------------|-------------------|

Section F.—*Anterior wings irrorated with black dots, forming bands and spots, but with no defined markings.*

- | | |
|---------------------|----------------------|
| 33. rhamnifoliella. | 35. cratægifoliella. |
| 34. Boyerella. | 36. Sircomella.† |

Besides these species there are four others not referrible to any of our existing genera, which have certain affinities with the *Argyromiges*, and which I have introduced here in the hope of calling attention to their existence. I can only find that one of them is known on the Continent.

- | | |
|----------------|-----------------------|
| 37. Loganella. | 39. argentipunctella. |
| 38. omissella. | 40. quercetella. |

Reference to the Plates.

- | | |
|--------------------------|---------------------------------|
| Pl. 1, fig. 1. lautella. | Pl. 1, fig. 10. Frœlichella. |
| „ 2. Schreberella. | „ 11. tristrigella var. strigi- |
| „ 3. ulmifoliella. | „ fasciella. |
| „ 4. Spinolella. | „ 12. trifasciella. |
| „ 5. connexella. | Pl. 2, fig. 13. quercifoliella. |
| „ 6. securiferella. | „ 14. Messaniella. |
| „ 7. Emberizæpennella. | „ 15. ilicifoliella. |
| „ 8. cavella. | „ 16. elatella. |
| „ 9. tristrigella. | „ 17. Junoniella. |

* Section D forms a portion of Zeller's genus *Opostega*, which also includes two of our *Apheloseiæ*, viz. *Auritella* and *Salaciella*.

Salaciella, *Tr.*, Zeller, *Dup.* This is placed in many cabinets as the *cygnipennella* of Stephens (Mr. Stephens has made two species of *cygnipennella* of Hubner, describing the female as *cygnipennella* and the male as *semialbella*). As there is much confusion about this insect and *cygnipennella*, *Hub.*, I think it advisable to say a few words about it. The structure of the antennæ, which places it in the genus *Opostega*, should surely be sufficient to separate it from *cygnipennella*, *Hub.*, added to which the insect is smaller and the anterior wings very glossy, whereas in *cygnipennella* they are much duller. *Salaciella* is much rarer than *cygnipennella*. I took several at light in July and August last year.

† These two sections form part of Zeller's genus *Lyonetia*, which, as I have before observed, also contains most of our *Microsetiæ*.

Pl. 2, fig. 18.	pomonella.	Pl. 3, fig. 30.	padifoliella.
„	19. almifoliella.	„	31. corylifoliella.
„	20. Cramerella.	„	32. Demaryella.
„	21. tenella.	„	33. rhamnifoliella.
„	22. roborella.	„	34. Boyerella.
„	23. hortella.	„	35. cratægifoliella.
„	24. sylvella.	„	36. Sircomella.
„	25. comparella.	„	37. Loganella.
„	26. scitella.	„	38. omissella.
Pl. 3, fig. 27.	spartifoliella.	„	39. argentipunctella.
„	28. cerasifoliella.	„	40. quercetella.
„	29. Clerckella.		

Sp. 1. LAUTELLA, Heyden (fig. 1).

Lithocolletis lautella, Heyden MSS., Zeller, Linn. Entom. i. 194, fig. 14.

Argyromiges cydoniella, Stephens? Illustrations, iv. 255. St. Mus.

Tinea cydoniella, Haworth? Lepid. Brit. 575, N. 51. Fabricius? ? Ent. Syst. iii. ii. 323.

Expansion of the wings 3 lines. Head black. Forehead shining, silvery white. Palpi silvery white. Antennæ black. Thorax golden orange. Abdomen dark fuscous, rufous at the extremity. Legs and tarsi silvery gray. Anterior wings bright golden orange, with a short, silvery, basal streak, margined with black: on the costa are three somewhat triangular silvery spots, the first a little before the middle, the second a little beyond the middle, and the third near the apex; on the inner margin are two silvery spots, the first opposite the first costal spot, the second intermediate between the second and third costal spots; all these spots are margined interiorly with black. At the extreme apex is an oval black spot, contiguous to which, towards the anal angle, is a small silvery spot. In some specimens there is a small silvery spot on the inner margin near the base; cilia pale. Posterior wings fuscous, with paler cilia.

This species is very scarce in this country, but several were taken last August off beech-trees, near Tunbridge Wells, by Mr. Weir.

Zeller says of this species that "it flies near Vienna in May, on whitethorn, in company with *Kleemannella*, scarce. Heyden reared this species near Frankfort-on-the-Maine, in May, June and July, from caterpillars off oaks."

This insect, which has hitherto been called in this country the *cydoniella* of Fab., most certainly does not answer to his description, for Fabricius says, "Anterior wings golden, with a line at the base, and eight very white marginal spots disposed in pairs." Now there are only five marginal white spots (the sixth spot is not marginal), and though the first two form a pair, the other inner marginal spot is intermediate between the costal spots. Duponchel has figured as the *cydoniella* of Fabricius an insect which appears referrible to *pomonella*, and Zeller refers *doubtfully* Fabricius' insect to his *pomifoliella*.

Haworth unfortunately only copies the Fabrician description; but in his description of *mespilella*, he says, "very like *cydoniella*," so that I doubt much whether he intended our insect; besides he says, "it varies with the wings much paler, perhaps only in old specimens." Now I have not yet seen a pale specimen of *lautella*, so that this renders it still more probable that the insect intended by Haworth is not *lautella*.



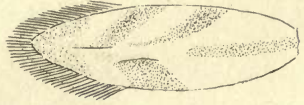
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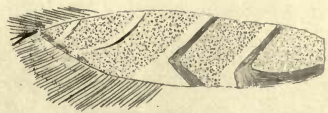
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Mr. Stephens also unfortunately only copies the Fabrician description, and omits both the remarks of Haworth, so that we should be completely in the dark as to what species he intended were it not for his own collection, which contains four specimens of *lautella* labelled *cydoniella*.*

Sp. 2. SCHREBERELLA, *Fabricius* (fig. 2).

Tinea Schreberella, Fabricius, Ent. Syst. iii. ii. 326, N. 168. Haworth, Lepidop. Brit. 575, N. 52.

Argyromiges Schreberella, Stephens' Illustrations, iv. 255 and Wood's figures 1316 and 1319.

Elachista Schreberella, Duponchel, Sup. iv. 465, Pl. 86, f. 2.

Lithocolletis ulminella, Zeller, Isis, 1838. Linn. Entomol. i. 246, fig. 37.

Expansion of the wings $3\frac{1}{2}$ lines. Head black. Forehead metallic. Palpi metallic. Antennæ black, tipped with white. Thorax black. Abdomen deep fuscous. Legs and tarsi deep fuscous, very glossy. Anterior wings brilliant deep orange, suffused with black at the base, with two nearly straight silvery fasciæ (bordered with black both internally and externally), one before, the other rather beyond, the middle; on the inner margin, near the anal angle, is a silvery spot, opposite to which, on the costa, is another; from the apex of the spot on the inner margin a dark streak arises, which is continued to the apex of the wing and through the cilia; beneath this streak, close to the apex, is a small silvery spot; cilia deep fuscous, darkest opposite the above-mentioned streak. Posterior wings deep fuscous, with paler cilia.

This insect at first sight resembles the preceding, but is at once recognized by the two distinct silvery fasciæ. The colouring in these two species is much more splendid than in any of their congeners.

Taken in some plenty July 31st last, at Stoke Newington, near some pollard elms, by Mr. Bedell. I took a single specimen off a low fence near Beckenham, May 15th, and one was taken by Mr. Bedell there six days previous. Zeller says, "According to Mann's communication it occurs near Vienna, on elms, in plenty, and flies in June; and according to Heyden it is very abundant on elms near Frankfort-on-the-Maine."

There can be no doubt about this being the *Schreberella* of Fabricius, who says of it, "Wings golden at the base, with two fasciæ in the middle, and with two opposite silver spots at the apex." It is not a little singular, as Duponchel has remarked, that an insect so well characterised and described by Fabricius should be totally omitted by Hubner and Treitschke.

Zeller says he cannot recognize in this insect the *Schreberella* of Fabricius, because "he has omitted the most important character, namely, the mark at the apex." He says that Heyden and Fischer von Roslerstamm differ from him on this point, and Mann in his Catalogue gives *Schreberella*, *Fab.* (*ulminella*, *Zeller*).

* It may not perhaps be out of place here to censure the practice of copying another author's descriptions without adding a single word, to enlighten future writers, as to whether the insect the first author described was really intended. This practice causes a very great part of the ambiguity of synonymes.

Sp. 3. *ULMIFOLIELLA*, Zeller (fig. 3).

Lithocolletis ulmifoliella, Zeller, Isis, 1839. Linn. Ent. i. 210, fig. 18.

Elachista ulmifoliella, Treitschke? ix. ii. 187.

Tinea ulmifoliella, Hubner?? Ti. 444.

Argyromyces Klemannella, Stephens' Illustrations? iv. 256 (non Fab). St. Mus. Bent. Mus. Wood, f. 1317.

Expansion of the wings $3\frac{1}{2}$ lines. Head whitish fulvous. Forehead silvery white. Palpi silvery white. Antennæ black. Thorax deep fuscous. Abdomen deep fuscous. Legs fuscous. Tarsi white, spotted with fuscous. Anterior wings bright orange (but not so rich a colour as the two preceding), with a narrow silvery streak at the base, extending nearly to the middle; just beyond the middle is a silvery fascia, curved outwardly, margined interiorly with a deeper orange; beyond this there are three silvery spots on the costa and two on the inner margin; at the apex is a distinct black spot: the cilia are varied with bright tawny and silvery white, the latter colour being in continuation of the silvery spots; from the apex to the anal angle is all silvery; at the anal angle is a deep tawny patch in the fringe, which comes just between the two silvery spots on the inner margin. Posterior wings silvery gray; cilia silvery white.

Taken in plenty May 2nd and 9th last year, off dwarf birches, at West Wickham Wood, by Mr. Bedell.

Zeller says of this, "It flies near Vienna, in Bohemia, and near Dresden, where Fischer has bred them from the larvæ. Near Glogau it is abundant from the middle of April, in May and June, in birch and hazel bushes." This is decidedly the *ulmifoliella* of Zeller, who refers it *without any doubt* to the *ulmifoliella* of Hubner, of which he says, "Hubner's magnified figure is certainly rough, but it allows us to recognize our species. It belongs (it shows there three white fasciæ) to my variety *b*.* The odd costal spot is in that figure separated from the costa, and is attached to the black apical spot."

It has not yet been my fortune to see a specimen at all answering to the figure of Hubner, in which there are decidedly three white fasciæ. For this reason I have not ventured to call this the *ulmifoliella* of Hubner; but as I think it not very improbable that specimens may occur resembling his figure, I have not thought it advisable to supersede the name as used by Zeller.



Mr. Stephens has copied the description of *Kleemannella* of Fabricius, "Wings golden, shining, with the two first fasciæ entire, the other two interrupted in the middle, almost united; a black spot terminates the wing," to which he makes no addition; and I should never have thought that he had intended this insect, but in his cabinet I find a specimen of *ulmifoliella* labelled *Kleemannella*. I believe the *Kleemannella* of Fabricius has not occurred in this country. Haworth it is true also quotes Fabricius, and says, "Found near Coombe Wood, scarce, in May." He adds no remark, and does not refer to it in any of his other descriptions. Haworth's *tristrigella* comes nearer than any other British species to the Fabrician *Kleemannella*, but Zeller has figured an insect in the *Linnæa*, fig. 36, as *Kleemannella*, which agrees perfectly with the description of Fabricius, but it does not appear identical with any British species.

* "Var. *b*. The first pair of spots forming a fascia."

Sp. 4. *CAVELLA*, Zeller (fig. 8).*Lithocolletis cavella*, Zeller, Linn. Entom. i. 213, f. 19.*Lithocolletis Schreberella*, Zeller, Isis, 1839.

Expansion of the wings 4 lines. Head pale tawny. Forehead pale tawny. Palpi whitish fulvous. Antennæ white, annulated with black. Thorax pale tawny. Abdomen fuscous, tipped with fulvous. Legs and tarsi silvery gray. Anterior wings pale tawny, with a white angulated fascia in the middle; beyond this are three white spots on the costa, and two on the inner margin. The first spot on each margin and the fascia are margined internally with dark tawny; at the apex is a black spot, and between the two first marginal spots is another not very distinct black spot. In certain lights a pale basal streak is visible: cilia pale, with a brown patch opposite the anal angle, and an arch of black dots round the apex. Posterior wings clear gray, with paler cilia.

I have a specimen of this species, which I took on the 14th of May, last year, on a low fence near Beckenham. I know no other British specimen.

Why Zeller should ever have called this *Schreberella* I am at a loss to conceive, and I cannot state the objection better than Zeller has himself done in the 'Linnæa.' "Fabricius speaks of two fasciæ and two opposite spots on the anterior wings, whilst our species has only one fascia."

It looks, at first sight, not unlike a pale *ulmifoliella*, but the fascia is more angulated, and the lower arm of this fascia is longer than the costal arm (this is not sufficiently shown in the Plate). The fourth costal spot also differs from that in *ulmifoliella*, not being so close to the apical spot.

Sp. 5. *SPINOLELLA*, Duponchel (fig. 4).*Elachista Spinolella*, Duponchel, xi. 535, Plate 308, f. 8.*Argyromiges alnifoliella*, Bent. Mus.

Expansion of the wings $3\frac{1}{2}$ lines. Head whitish fulvous. Forehead silvery white. Palpi silvery white. Antennæ black, tipped with white. Thorax fuscous, with the sides silvery. Abdomen fuscous. Legs and tarsi silvery white. Anterior wings bright brownish orange, with a silvery white fascia about the middle, slightly curved outwardly; the basal half of the wing is not concolorous, but it is pale or silvery white on the inner margin and between the costa and the middle of the wing; beyond the medial fascia are three silvery spots on the costa and two on the inner margin, and at the apex is a black spot, and another black spot is visible in some specimens (in certain lights) between the last inner marginal spot and the opposite costal one: cilia varied silvery white and tawny, according to the colour of the parts of the wing from which they rise. Posterior wings silvery gray, with fuscous cilia.

Somewhat resembles *ulmifoliella*, but the spots are of a purer white; the medial fascia is more nearly straight, and the pale marks at the base do not in the least resemble a streak, which is well defined in *ulmifoliella*.

I have only seen five specimens of this insect; two of them in my own possession, one belonging to Mr. Logan, one to Mr. Desvignes, and that in Mr. Bentley's collection. My first specimen was beat out of a birch tree near Latham Moss, Stirling-

shire, in June, 1844, by Mr. Jobson; my second I beat out of a low hedge near Ambleside, May 31st, 1846.

Note.—Since writing the above I find that Mr. Sircom takes this insect, not uncommonly, among fallows.

Sp. 6. *CONNEXELLA*, Zeller (fig. 5).

Lithocolletis connexella, Zeller, Linn. Entomol. i. 226, fig. 25.

Expansion of the wings $3\frac{1}{4}$ lines. Head pale tawny. Forehead silvery white. Palpi silvery white. Antennæ tawny, annulated with white. Thorax pale tawny. Abdomen fuscous. Legs and tarsi silvery white. Anterior wings pale tawny, with a pale streak at the base, extending nearly to the middle, and then joining a spot from the inner margin; in the middle of its length it also touches an inner marginal spot; on the costa are four triangular white spots, the first a little before the middle, the others at regular distances between it and the apex; on the inner margin are two white triangular spots, one between the second and third costal spots, the other nearly opposite the fourth costal spot; at the apex is a small black spot, and another is visible, in certain lights, between the second costal spot and the opposite spot on the inner margin: cilia pale gray, varied with white patches opposite the pale spots on the wing, and with a row of black dots forming an arch round the apex. Posterior wings clear gray, very shining, with paler cilia.

A single specimen of this species was taken last summer by Mr. Bedell, who did not observe at the time that it was distinct from *Blancardella*, consequently nothing is known of where it was taken. This is the only British specimen I have yet seen.

Zeller says "I took several specimens of this scarce species near Glogau, at the end of April and in May, in birch woods, in company with other species of *Lithocolletis*. Mann finds this rarely near Vienna, in May and June, on willows."

Sp. 7. *EMBERIZÆPENNELLA*, Bouché (fig. 7).

Ornix emberizæpennella, Bouché, Naturgeschichte der Insecten, I. S. 132.

Lithocolletis emberizæpennella, Zeller, Isis, 1839. Linn. Entomol. i. 241, fig. 34.

Argyromiges tristrigella, Stephens' Illustrations? iv. 256. St. Mus. (non Haw.) Wood, f. 1320.

Expansion of the wings 4— $4\frac{1}{2}$ lines. Head bright orange-tawny. Forehead white. Palpi white. Antennæ white, annulated with black. Thorax bright orange-tawny. Abdomen fuscous, rufous at the extremity. Legs white. Tarsi white, spotted with black. Anterior wings bright orange or brownish orange, with two entire yellowish white fasciæ, one near the base, nearly straight, the other about the middle, distinctly angulated and margined internally with black; beyond these are three yellowish white spots on the inner margin, the first of which is margined internally with black, and on the costa are two yellowish white spots; all these five spots are continued through the cilia; at the extreme apex is a small black spot, and another distinct between the first costal and first inner marginal spot: the cilia are of the colour of the parts of the wing from which they spring. Posterior wings shining gray; cilia paler, and somewhat of a yellowish tinge.

A scarce species. I know only five British specimens; one in my own collection,

one in that of Mr. Allis, one in that of Mr. Desvignes, one in that of Mr. Douglas, and one (probably that from which Wood's figure was taken) in that of Mr. Stephens. All these, except Mr. Stephens's, were mixed with specimens of *tristrigella*, consequently I can give no information of their time and place of capture.

Zeller says of this "I found this species at Frankfort and Berlin, in gardens, on *Lonicera caprifolium*, not scarce, in May and August. Mann took it at the same time near Vienna. Probably it occurs everywhere where honeysuckles are grown in gardens."

I should not have quoted Mr. Stephens' Illustrations at all as a synonyme for this, but as I find that the only specimen placed in Mr. Stephens' cabinet as *tristrigella* is *emberizæpennella*, I presume Mr. Stephens had that insect in view at the time. The description in the Illustrations is a translation of Haworth's description of *tristrigella*.

Sp. 8. *TRISTRIGELLA*, Haworth (fig. 9).

Tinea tristrigella, Haworth, Lepidop. Brit. 576, 55.

Argyromiges tristrigella, Stephens' Illustrations? (non St. Mus.)

Var.? *Argyromiges strigifasciella*, mihi (fig. 11). As this may perhaps eventually prove a distinct species, I shall give a completely separate description of it. The description that immediately follows belongs only to the typical *tristrigella*.

Expansion of the wings $3\frac{1}{4}$ — $3\frac{3}{4}$ lines. Head tawny. Forehead white. Palpi white. Antennæ white, annulated with black. Thorax tawny. Abdomen fuscous. Legs fuscous. Tarsi black, spotted with white. Anterior wings reddish orange, with three pale fasciæ, equidistant, the first before the middle, the second in the middle, and the third towards the apex; the two first are nearly straight, the third is angulated, and from the middle of it there is a slender white line towards the extreme apex, slightly curved at its extremity: all these fasciæ are margined internally with black, and beneath the apical streak is a black patch consisting of a number of very minute black dots: cilia rufous-orange, with two pale patches on the costa, one arising from the third fascia, and the other from the extremity of the apical streak. Posterior wings clear gray, with fuscous cilia.

Though I have often taken this insect myself, I cannot say when or where, and I believe most persons are in the same predicament. Mr. Bedell took some specimens on the Dartford Heath fence, May 19th, 1846.

There is no doubt of this insect being the *tristrigella* of Haworth, who says, "Anterior wings brownish yellow, with a straight fascia before the middle, a second in the middle, and a third beyond the middle, equidistant, silvery gold."

Var. ? *STRIGIFASCIELLA*.

Expansion of the wings 4 lines. Head tawny. Forehead white. Palpi white. Antennæ white, annulated with black. Thorax tawny. Abdomen fuscous. Legs fuscous. Tarsi white, spotted with black. Anterior wings tawny, with a pale nearly straight fascia before the middle, and an angulated one in the middle; beyond this there is a pale spot on the inner margin near the anal angle: the first fascia is narrowly margined with black internally, the second is margined internally with a black fascia, very broad at the costa, but terminating almost in a point on the inner margin;

another broad dark fascia precedes the inner marginal spot; beyond this spot the costal half of the apex is tawny, the half nearest the anal angle is much spotted with deep fuscous: cilia tawny. Posterior wings clear gray, with paler cilia.

I am inclined to think this distinct from *tristrigella*, but having only seen one specimen, which is in the collection of Mr. Bedell, I am reluctant to found a species upon it where there is the slightest reason to doubt. Its main points of difference from *tristrigella* are—

1. The angulation of the second pale fascia, which in *tristrigella* is nearly straight.
2. The breadth of the black margins to the fasciæ, which makes it approximate in appearance to *trifasciella*.
3. The absence of the pale spot on the costa opposite the inner marginal spot.

Sp. 9. *FRÆLICHIELLA*, Zeller (fig. 10).

Lithocolletis Frælichella, Zeller, Isis, 1839. Linn. Entomol. i. 243, fig. 35.

Argyromiges Kleemannella, Haworth? Lepidop. Brit. 576, 54.

Expansion of the wings 4 lines. Head brownish orange. Forehead white. Palpi white. Antennæ white, annulated with brown. Thorax brownish orange. Abdomen fuscous. Legs and tarsi deep fuscous. Anterior wings deep brownish orange, very glossy, with three nearly straight, equidistant, pale fasciæ, and beyond these two pale spots on the costa and one on the inner margin; at the apex is a black spot: cilia pale, with an arch of black dots round the apex. Posterior wings gray, with paler cilia.

This species having in this country been mixed with specimens of *tristrigella* in cabinets, I can obtain no information how or when the specimens were taken. I must have taken several last summer, but for want of labelling captures can say nothing about them.

Zeller says "This scarce species is found near Vienna, on alders, in the leaves of which the caterpillar mines: the chrysalis lives through the winter, and the perfect insect appears in May and June; near Frankfort on the Oder; in Livonia, in June and July; near Dantzic; near Glogau, where I took a fine female on the 18th of June, on birch."

As this species comes nearer than any other *known British* species to the Fabrician *Kleemannella*, I have quoted Haworth doubtingly as a synonyme.

Sp. 10. *TRIFASCIELLA*, Haworth (fig. 12).

Tinea trifasciella, Haworth, Lepidop. Brit. 576, 56.

Argyromiges trifasciella, Stephens' Illustrations, iv. 257. St. Mus.

Argyromiges alnifoliella, Stephens' Illustrations, iv. 259. St. Mus. (non Hub.)

Wood's figures 1327 and 1329.

Lithocolletis torquillapennella, Heyden MS.

Lithocolletis Heydenii, Zeller, Linn. Entomol. i. 247, fig. 38.

Expansion of the wings 4 lines. Head bright tawny. Forehead white. Palpi white. Antennæ white, annulated with black. Thorax tawny. Abdomen fuscous. Legs white. Tarsi white, annulated with black. Anterior wings bright tawny, with three pale fasciæ; the first before the middle angulated and margined internally with

black; the second about the middle angulated and broadly margined internally with black; the third nearly straight, but somewhat interrupted, also margined internally with black; the black margins of all these fasciæ are broadest on the costa; from the middle of the third fascia a black patch extends to the anal angle; at the apex is another small black patch, above which is a small pale streak; cilia pale tawny. Posterior wings clear gray; cilia paler and slightly fulvous.

Not an uncommon species: I beat two specimens out of a hazel bush at Birch Wood, September 17th, 1846.

Zeller says "Heyden discovered this beautiful species at Frankfort on the Maine, on honeysuckle, and presented me and Fischer von Röslerstamm specimens under the name of *Torquillæpennella*, which I have allowed myself to change."

It is rather strange that Zeller has not recognized this insect in the trifasciella of Haworth: it is true that he does not appear acquainted with the 'Lepidoptera Britannica,' but Mr. Stephens, whom he often quotes and criticises (pretty severely sometimes), has given a translation of Haworth's description in his 'Illustrations.'

The specimens placed as *alnifoliella* in Mr. Stephens' cabinet are two faded specimens of trifasciella; and I presume this is the insect to which he alluded in his description of *alnifoliella*, which certainly could never do for the real *alnifoliella* of Hubner.

Sp. 11. *MESSANIELLA*, Zeller (fig. 14).

Lithocolletis Messaniella, Zeller, Linn. Entomol. i. 221, fig. 23.

Tinea Harrisella, Haworth? Lepid. Brit. 577, 60.

Expansion of the wings 4—5 lines. Head tawny. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax tawny. Abdomen fuscous, with the extremity pale tawny. Legs fuscous. Tarsi whitish, with darker annulations. Anterior wings shining, pale tawny, with a pale basal streak reaching *nearly* to the middle of the wing: on the costa are four paler markings, and on the inner margin the same number: the first costal spot is narrow, and slightly curved at its extremity; the second is nearly straight, and points towards the anal angle; and the third and fourth are slightly curved: the first inner marginal spot is very indistinct and very short; it is opposite the middle of the basal streak; the second arises exactly opposite the first costal spot, is *very long* and curved, and *continued towards the apex of the wing as far as the extremity of the second costal spot*; the third inner marginal spot arises rather beyond the second costal spot, and terminates just below the extremity of that spot; the fourth arises near the anal angle, and generally meets (or very nearly so) the third costal spot; all these spots are margined internally with brown: at the apex of the wing is a small black spot: cilia tawny between the third and fourth costal spots, and again a little beyond the fourth costal spot; the remainder very pale tawny, with a black arch round the apical spot. Posterior wings clear gray; cilia grayish fulvous.

I beat this insect in great plenty, two years ago, out of an evergreen oak, which it seemed to frequent throughout the summer.

Zeller says of it, "I took this species from the middle of February to the end of March, near Messina, on the mountain on each side of the road to Palermo, at Buonretiro, Tremmonti and St. Michael. They frequented the dry foliage on the bushes of *Quercus pubescens*. Probably it is not scarce there, but as the weather was at the

time wet and windy, they seldom flew out with beating; and as I took them for nothing else but our common quercifoliella, so I gave myself less trouble about them than I should have otherwise done. It probably occurs in other parts of the South of Europe, on the same species of oak."

This species exists in most collections in this country, mixed with the next species; under the name of *Harrisella*; and as Haworth has described quercifoliella as *Harrisella* var. β ., the question arises—is this insect his typical *Harrisella*? but there we can get no information, his description being merely a copy of Linnæus's, which is so extremely vague that any one of this section of the genus would answer it equally well:—"Wings gold and silver varied, with the apex obtuse, not pointed like the preceding (*Clerckella*); in the apex the colour is ustulated, brownish, with a subocellated black spot."!! I am inclined to fancy this species has been overlooked on the Continent, as in this country, for it would be strange indeed that an insect should occur both in England and Sicily, and in no intermediate country.

Sp. 12. QUERCIFOLIELLA, *Fischer-v-R.* (fig. 13).

Lithocolletis quercifoliella, Fischer von Röslerstamm, MSS. Zeller, Isis, 1839. Zeller, Linn. Entom. i. 218, fig. 22.

Elachista quercifoliella, Duponchel? xi. 531, Pl. 308, fig. 5.

Tinea Harrisella, var. β ., Haworth, Lepid. Brit. 577, 60. Wood's fig. 1322?

Expansion of the wings $3\frac{1}{2}$ — $4\frac{1}{2}$ lines. Head tawny. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax pale tawny. Abdomen fuscous, with the extremity fulvous. Legs shining whitish. Tarsi white, with a brown spot at the end of the joints. Anterior wings pale tawny, shining, with a long, narrow, pale basal line to beyond the middle of the wing: on the costa are four pale spots, on the inner margin three: the first costal spot is slightly curved, and bordered with brown on both sides; the second is straight; the third and fourth comma-shaped (these are only margined inwardly with brown: the first inner marginal spot is small, curved, and terminates before the end of the basal streak; the second is nearly straight, and terminates between the second and third costal spots; the third is very indistinct, and has rather a tendency to meet the third costal one: these spots are all margined internally with brown. In some specimens there is a pale mark on the inner margin near the base. At the apex is a round black spot: cilia tawny between the third and fourth costal spots, and just beyond the fourth; the remainder glossy pale fuscous, with a black arch round the apex of the wing from the fourth costal spot to the third inner marginal spot. Posterior wings clear gray; cilia grayish fulvous.

A very common species, frequenting oaks.

Zeller says of it, "This species is found near Reichstadt, in Bohemia, near Breslau and Glogau. Here (Stettin) it is one of the commonest *Lithocolletes* in oak woods, and flies at the end of April and in May, and again in July and August. It appears nearly the earliest in the genus: on the 14th of April, 1833, I beat a fresh specimen, along with *Plutella fissella*, out of the dried leaves of a low oak. The caterpillar lives in oak leaves, and Mann has bred them from the same leaf with *abrasella* and *ilicifoliella*."

This species is well described by Haworth, thus: "Anterior wings golden, with a

streak from the base beyond the middle, and with seven oblique, marginal, opposite (the last excepted) silvery spots, and a subocellated black spot at the apex."

The figures in Wood and Duponchel have both the same fault,—that of the basal streak not being long enough.

Sp. 13. *ILICIFOLIELLA*, *Fischer-v-R.* (fig. 15).

Lithocolletis ilicifoliella, Fischer von Röslerstamm, MSS. Zeller, Linn. Entom. i. 183, fig. 9.

Elachista ilicifoliella, Duponchel, Sup. iv. 309, Pl. 76, fig. 4.

Argyromiges mespilella, Stephens ? Illustrations, iv. 256. St. Mus. Bent. Mus. Wood's fig. 1318 ?

Expansion of the wings $4\frac{1}{4}$ — $4\frac{1}{2}$ lines. Head white, with a few brown hairs. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax pale tawny, the sides silvery white. Abdomen fuscous, with the extremity fulvous. Legs whitish. Tarsi white, annulated with fuscous. Anterior wings shining, pale tawny, with a silvery white basal streak reaching over a third of the wing: on the costa are four silvery white spots, and on the inner margin three: the first costal spot is narrow, and points towards the anal angle; it is nearly straight, and terminates a little beyond the basal streak; it is not bordered with brown on either side, and its inner margin is continued on the costa, half-way to the base of the wing: the second, third and fourth costal spots are nearly comma-shaped, and margined internally with brown: the first inner marginal spot is narrow, slightly curved, and terminates just beyond the first costal spot, like which it is not margined with brown on either side; the inner margin to the base of this spot is generally pale silvery; the second inner marginal spot is nearly opposite the second costal spot; the third is between the anal angle and the apex; both the second and third are margined internally with brown; at the apex is a long black spot: cilia tawny before the third and between the third and fourth costal spots: just beyond the fourth spot is a dark mark in the cilia (which Zeller has apparently, if this be really his species, magnified into a hook); the rest of the cilia is pale, with a black arch round the apex, and continued to the anal angle. Posterior wings clear gray; cilia grayish fulvous.

This species is very apt to be confounded with pomonella, but it differs by the first pair of spots not being margined with brown, by the inner margin of the first costal spot being continued towards the base, and by the tarsi being spotted instead of white. I have a specimen of this insect which I took last year (probably on Penge palings, in May, in company with pomonella); and it is in other collections mixed with pomonella.

Zeller says of it, "A discovery of Mann's; flies at Tivoli, near Vienna, in May, July and August, in company with abrasella, &c., on oaks. Herrich Schäffer found this also near Ratisbon."

Sp. 14. *ELATELLA*, *Zeller* (fig. 16).

Lithocolletis elatella, Zeller, Linn. Entomol. i. 190, fig. 12.

Lithocolletis confertella, Mann ? in Cat.

Expansion of the wings $3\frac{3}{4}$ lines. Head pale tawny. Forehead silvery white. Palpi silvery white. Antennæ white, annulated with pale tawny. Thorax pale tawny,

the sides silvery white. Abdomen fuscous, reddish at the extremity. Legs and tarsi silvery. Anterior wings very glossy, pale tawny, with a silvery streak at the base, the upper side of which is straight, but the under side, after continuing straight for a third of its length, first swells out a little below and then meets the upper side at its extremity, thus terminating in a point (or very nearly so): there are four silvery spots on the costa, and three on the inner margin: the first costal spot is triangular, with the point towards the anal angle; the inner side nearly twice the length of the outer side, and margined with black on both sides: the second, third and fourth costal spots are comma-shaped, and margined internally with black: the first inner marginal spot extends beyond the middle of the disk in a slanting direction, and then turns nearly at right angles, terminating in a short longitudinal streak; the upper half of this spot is margined on both sides with black; the second inner marginal spot is triangular, but with the apex slightly curved outwards, margined internally with black; the third spot is slightly comma-shaped: at the apex is an oblong black spot, above which (forming, as it were, the upper half of it) is a short white streak, which joins the fourth costal spot: cilia varied, with tawny and silvery white, the latter colour being opposite the spots. Posterior wings clear gray; cilia paler and slightly fulvous.

This is another of the species which may easily be confounded with *pomonella*: the greatest characteristic by which it may be distinguished readily is, probably, the white streak which is attached to the apical black spot. The form of the basal streak is also another good character. This insect was taken by Mr. Sircom, among grass on Durdham Downs.

Zeller says, "I took two males and one female, May 15th, 1842, near Glogau, in an oak wood, in company with a specimen of *pomifoliella*."

Note.—I confess to being rather dubious whether this be really *elatella* of Zeller. At the time I wrote the description and drew the figure I entertained no doubt, but have since seen an insect which resembles still more closely Zeller's figure, and appears to differ somewhat from that I have described. It has the anterior wings less glossy, and the first inner marginal spot more curved, and continued nearly to the apex of the second inner marginal spot. In the white streak attached to the apical black spot, and the shape of the basal streak, it resembles the insect above described.

Sp. 15. *POMONELLA*, Zeller (fig. 18).

Lithocolletis pomonella, Zeller, *Journ. Entom.* i. 201.

Lithocolletis Blancardella, Zeller, *Isis*, 1838 and 1839.

Elachista Blancardella, Treitschke? *ix.* i. 186, *x.* iii. 216.

Argyromiges Blancardella, Stephens? *Illustrations*, iv. 255.

Tinea Blancardella, Haworth? *Lepidop. Brit.* 575, 53. Fabricius? *Ent. Syst.* iii. ii. 327.

Tinea mespilella, Hubner? *Ti.* 272. Haworth? *Lepidop. Brit.* 576, 57.

Expansion of the wings $3\frac{1}{2}$ — $4\frac{1}{2}$ lines. Head white, with a few tawny hairs. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax pale tawny, with the sides whitish. Abdomen fuscous, with the extremity fulvous. Legs and tarsi white. Anterior wings shining, pale tawny, with a silvery white basal streak and four spots on the costa, three on the inner margin, all silvery white; the basal streak is narrow and straight, and not edged with brown: the first costal spot

has a broadish base, is very nearly straight, and points towards the anal angle; the other three are comma-shaped; the fourth just touches with its apex the oval black spot at the apex of the wing: the first inner marginal spot is much curved, and reaches to just beyond the apex of the first costal spot; the second is somewhat triangular, though its inner margin is slightly curved; the third is opposite the third costal spot, which it very nearly joins: all these spots are margined internally with brown: cilia varied, according to the parts of the wing from which they spring, with a darker arch from the fourth costal spot to the anal angle: the inner margin of the wing is often whitish from the base to the first spot. Posterior wings clear gray; cilia paler and fulvescent.

Closely allied to the next species, but differs in the generally paler colour of the anterior wings, and the hind tarsi are quite white instead of being spotted.

I took this species in plenty last May on the Penge palings; I do not remember ever taking it before.

Zeller says of it, "This probably not scarce species flies in April and May, and again later in the season, near Glogau, in an oak wood, in which there is a mixture of whitethorn and sloe, &c."

Zeller mentions two varieties of it, viz.—

"Var. *b.* With the first pair of spots united, forming a very acute angle.

"Var. *c.* With the first and second inner marginal spots united at their apices."

It is among specimens of this insect that I have found mixed *elatella*, *ilicifoliella* and *securiferella*. Several other allied continental species may yet have escaped detection.

Fabricius's description of *Blancardella* would suit this insect very well, only it would equally suit *ilicifoliella*, *pomonella* and others. He says, "Anterior wings golden, with a slender silvery basal line, which joins the side of the thorax. Four spots on the costa, three on the inner margin, all beyond the middle."

Haworth has copied Fabricius without remark, but he describes as var. β . an insect with a medial fascia, which from his description I cannot make out at all. Mr. Stephens also adds but little to the description of Fabricius. Haworth's description of *mespilella* would also suit our insect very well, and I have very little doubt that this insect was the one he intended; but Mr. Stephens has copied Haworth's description, and apparently applied it to a different species.

Hubner's figure of *mespilella* is too coarse to be of any use where the species are so very closely allied.

Sp. 16. POMIFOLIELLA, *Tischer*.

Lithocolletis pomifoliella, *Tischer*, MSS. *Zeller*, *Isis*, 1839. *Linn. Entom. i.* 196, f. 15.

Tinea Rajella, *Haworth*? *Lepidop. Brit.* 577, 56.

Argyromiyes Rajella, *Stephens*? *Illustrations*, iv. 256. *St. Mus.* *Bent. Mus.* *Wood's fig.* 1314.

This species differs so little from the preceding one that it would be superfluous to write a full description of it. It is generally smaller than *pomonella*, the anterior wings are much deeper tawny, and the hinder tarsi are spotted with black, instead of being pure white as in that species. It is one of the commonest and most generally distributed species in the genus.

Zeller says, "As a certain resort of this species I know the neighbourhood of Dresden, where Tischler has bred it from caterpillars off fruit trees, . . . and Glogau, where I have taken several specimens, principally in birch and oak woods, in which there are bushes of whitethorn, sloe, willow, &c."

This insect has so long gone in this country by the name of the Linnean *Rajella*, that I think it necessary to state fully my reasons for changing that name. Linneus says ('*Fauna Suecica*,' 1407),—

"*Rajella*; wings golden, with six silvery spots, the second and third united.

"De Geer, *Ins.* i. tab. 31, figs. 11, 12.

"The larva inhabits the inside of alder leaves, &c.

"*Description*.—Small; resembling *Phalæna Gædartella*. Anterior wings brownish or golden, with three silvery white spots on each side, of which the second is nearly transverse."

The only addition Linneus makes in the '*Systema Naturæ*,' i. ii. 898, is that he says "with seven silver spots." Now the first difficulty that will strike every one is "*resembling Gædartella*:" fortunately there is in the Linnean cabinet a specimen labelled *Rajella*, and it is our *Brockella*. How the mistake arose must ever be a mystery, as no part of the description will apply to *Brockella*; moreover the insect figured in De Geer is truly an *Argyromiges*, and we see from that figure the meaning of Linneus's words "the second and third united:" the spots are united, not across the wing, but join one another along the inner margin and along the costa, being thus connected laterally by their bases, not transversely by their apices. I am rather perplexed as to what Linneus means by "the second is nearly transverse:" the *first* costal spot in De Geer's figure extends more than half across the wing, with a tendency to meet the *second* inner marginal one; but further than that there is no appearance of a transverse fascia.

De Geer gives very precise information about the habits and appearance of the larva, which feeds on the parenchyma of alder leaves, in which it turns to a chrysalis, and the moth comes out about the 12th of June, whereas *pomifoliella* has nothing to do with alders. These reasons would be quite sufficient to upset the nomenclature, but Zeller has figured an insect precisely similar to De Geer's figure, which is probably the next species.

Haworth copies Linneus, and adds, "perhaps a variety of *mespilella*, but much less, with the wings almost without yellow or golden;" though what he means by the latter half of the sentence I cannot discover. The description given by Mr. Stephens is also a copy of Linneus; but in order to make it more distinct, he adds, after the words "the second and third of which are frequently united," "*so as to form one or two transverse fasciæ*," thus, as Zeller remarks, taking Linneus's words in quite a different sense from what was intended.

Sp. 17. SECURIFERELLA, *Stainton* (fig. 6).

Elachista Rajella, *Duponchel*, xi. 541, Pl. 308, f. 11.

Lithocolletis Rajella, *Zeller*? *Linn. Entom.* i. 185, fig. 11.

Tinea Rajella, *Linneus*? *Faun. Suec.* 1407. *Syst. Nat.* i. ii. 898 (excl. *similis Gædartellæ*).

Expansion of the wings $3\frac{1}{2}$ lines. Head pale tawny or whitish. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax pale tawny, the sides

silvery white. Abdomen fuscous, with the extremity paler. Legs and tarsi white. Anterior wings pale tawny, very shining, with a silvery white streak at the base, four silvery white spots on the costa, and three on the inner margin: the basal streak is straight, and its extremity in most cases joins the apex of the first inner marginal spot, which is somewhat triangular (the union of this spot and the basal streak resembles a hatchet, whence the name); the second inner marginal spot is also triangular and well defined; the third is very small and slightly curved: the first costal spot has a broad base and is slightly curved at the apex, thus coming very near to the apex of the second; the second, third and fourth are comma-shaped; the apex of the fourth joins the oval black spot at the apex of the wing, and in some specimens appears to be continued through it, so as to form a fourth inner marginal spot (could this be the cydoniella of Fabricius?): cilia varied according to the colour of the parts of the wing from which they spring, with a dark arch round the apex of the wing. Posterior wings clear gray; cilia paler and slightly fulvescent.

I have only seen three specimens of this insect; one in the collection of Mr. Bedell, one in that of Mr. Douglas, and the third in that of Mr. Thomson. They are distinguished from pomonella by the triangular shape of the first inner marginal spot, and by its being generally connected with the basal streak.

In Zeller's figure of Rajella, the spots are connected along the inner margin, which is not the case in the only specimens I have seen, but it may vary. Duponchel's figure does not represent the spots confluent on the inner margin.

The insect of Zeller is an alder feeder, and there is little doubt but that his insect is the one figured and described by De Geer, and referred to by Linneus as *Tinea Rajella*.

Sp. 18. *JUNONIELLA*, Zeller (fig. 17).

Lithocolletis Junoniella, Zeller, Linn. Entom. i. 215, fig. 20.

Expansion of the wings $3\frac{1}{2}$ lines. Head whitish. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax tawny, with the sides silvery white. Abdomen pale fuscous. Legs pale fuscous. Tarsi whitish, with a few darker spots. Anterior wings rich deep tawny, with a broad white basal streak (occupying nearly a third of the breadth of the wing), which in most instances joins the first inner marginal spot: this spot is curved; its length seems variable, as of two very fine specimens I have before me, in one it terminates before the opposite costal spot, in the other it is prolonged beyond it: the spot at the anal angle is triangular, slightly curved outwardly at its apex; between this and the apex of the wing is another very small spot: on the costa are four white spots, the first of which is nearly straight, and points towards the anal angle; it is margined on both sides with brown; the other three, which are comma-shaped, are margined internally with brown; at the apex is an oblong black spot: cilia varied on the costa and pale tawny on the hinder margin, with a black arch round the apex extending to the anal angle. Posterior wings pale gray; cilia grayish fulvous.

I have seen this insect in several collections mixed with pomifoliella, and have one specimen myself, but can say nothing as to where or when I caught it. Zeller, who had only two specimens, without bodies, is also unable to give further information than that he took them near Glogau.

Sp. 19. ALNIFOLIELLA, Hubner (fig. 19).

Tinea alnifoliella, Hubner, Ti. 193.

Elachista alnifoliella, Duponchel, xi. 526, Pl. 308, fig. 2.

Lithocolletis Rajella, Zeller, Isis, 1839.

Lithocolletis alniella, Tischer, MSS. Zeller, Linn. Entom. i. 229, fig. 27.

Argyromiges Blancardella, Bent. Mus.

Expansion of the wings 4 lines. Head white, with a few dark hairs. Forehead white. Palpi white. Antennæ whitish, annulated with fuscous. Thorax tawny, with the sides whitish. Abdomen fuscous, with the extremity paler. Legs white. Tarsi white, spotted with black. Anterior wings dark tawny, with a rather broad white streak at the base, four white spots on the costa, and three on the inner margin: the first costal spot is long and rather triangular, and points towards the anal angle; the other three costal spots are all comma-shaped and very small: the first inner marginal spot is *very broad at the base, and the apex points into the middle of the second spot*; the second spot is, at its origin, triangular, but with *its apex curved and much prolonged*; the third, situated between the anal angle and the apex, is comma-shaped, and almost joins the third costal spot; at the apex of the wing is a round black spot (rather oval in the female): cilia varied silvery white and pale tawny. Posterior wings clear gray; cilia grayish fulvous. In the female, the base of the anterior wings on each side of the basal streak is nearly all white.

Not a common species, but probably much overlooked, being confounded with pomifoliella. I have several specimens from Scotland, taken last summer by Mr. Jobson.

Zeller says of it, "This appears with us the earliest of the Lithocolletes; I have even taken it on the 4th of April. Its period of flight is April, May, beginning of June, then in July and August. It frequents alder woods. I found it near Glogau, Frankfort and Berlin, both in the perfect and larva states, which latter I have not yet observed nearer. Tischer bred it at Dresden; Mann took it near Reichstadt and Vienna, the first brood on hornbeam, the latter on beech, scarce."

Hubner's figure, though very rough, has yet sufficient character about it to be recognized as this species. Zeller's reasons for calling this *Rajella* in Oken's *Isis*, were—that it was an alder feeder, that he knew no other alder feeder in the genus, that the Linnean *Rajella* was an alder feeder, and therefore probably identical with this species; but on finding afterwards another alder feeder, which, moreover, resembled much better the figure in De Geer referred to by Linneus, he immediately changed the name; and his reason for not calling it *alnifoliella* is, that Hubner's figure differs slightly from it, which is certainly true; but as Hubner's figure possesses several of the characters of this species (which no other species possesses), I think myself justified in retaining Hubner's name.

Sp. 20. CRAMERELLA, Fabricius (fig. 20).

Tinea Cramerella, Fabricius, Ent. Syst. iii. ii. 327. Haworth, Lep. Brit. 578, 61.

Argyromiges Cramerella, Stephens' Illust. iv. 257. St. Mus.

Lithocolletis Cramerella, Zeller, Isis, 1839. Linn. Entom. i. 234, fig. 29.

Argyromiges hortella, Steph. ? Illust. iv. 257. St. Mus. Wood's figs. 1323 & 1324.

Expansion of the wings $3\frac{3}{4}$ — $4\frac{1}{2}$ lines. Head white. Forehead white. Palpi white. Antennæ white. Thorax white. Abdomen fuscous, with the extremity ful-

vescent. Legs white. Tarsi white, spotted with fuscous. Anterior wings white (with more or less of a yellowish tinge occasionally): on the costa are three fuscous streaks, and on the inner margin two; the first costal streak begins a little beyond the middle of the wing, and points towards the anal angle; it meets the first inner marginal streak, which begins a little before the middle of the wing, forming with it an acute angle; the second pair of streaks is margined inwardly with pale fulvous; these meet at an obtuse angle, and the costal streak is at right angles with the costa; just beyond these two streaks is a white triangle on each margin, the remainder of the wing being pale fulvous; the third costal streak resembles the second, and is also followed by a small white triangle; at the apex of the wing is a round black spot, round which, in the cilia, is a series of black dots from the outer margin of the last costal triangle to the anal angle: cilia pale, with two dark patches in continuation of the two costal streaks, and a dark mark arising from the last, and continued to the extreme apex. Posterior wings clear gray; cilia whitish.

A most abundant species, frequenting oaks.

Zeller says of it, "This species is one of the most abundant near Glogau; it flies in May, July and August, principally in oak woods and hazel thickets. It is found in June in the Zoological Gardens at Berlin. Mann collected it at Reichstadt, in June, off larches; near Vienna, in June and August, off beeches, on which he also found the caterpillar."

This insect having been *universally* admitted as the *Cramerella* of Fabricius, I have not ventured to oppose an unanimity so unusual; but I will just remark here that Fabricius says "with *three opposite* oblique fasciæ." Now this has three costal, but only *two* inner marginal fasciæ. Zeller imagines Fabricius took the dark mark in the fringe for a third fasciæ; perhaps so: at any rate it may as well bear the name of *Cramerella* till a new species turns up which will agree better with the Fabrician description.

H. T. STANTON.

March, 1848.

(To be continued).

Occurrence of Vernal Diptera in Berwickshire, with Descriptions of two British Species.

By JAMES HARDY, Esq.

ALTHOUGH we have hitherto had "March weather" in its fullest rigour and incon-
sistency, several Dipterous insects have already appeared to enjoy the intervals of sun-
shine between the reign of storm and cloud that distinguishes this period of the "un-
confirmed year." Many of them have, doubtless, weathered the winter; but now their
numbers are augmented; their sports are rendered more accordant with the character
of the season; and the pleasure of observing them is increased, by their being associated
with vernal aspirations, as the harbingers of the gay procession to succeed, and the hours
of happiness in the study of the bright throngs kept in store for all who will

"Come forth into the light of things,"

and accompany Nature, through her series of evolutions of myriads of existences.

As yet there have appeared only such kinds as depend for their sustenance but little
upon the flowery tribes, of which the coltsfoot and the opposite-leaved golden saxi-

frage (*Chrysosplenium oppositifolium*) are the only two, in a wild state, that have dared to show their blossoms. *Pollenia atramentaria* is common on the flowers of the first mentioned plant,—on the sides of walls,—and on windows; having passed the winter in some corner, beyond the reach of the frosts. Numbers of *Trichocera regelationis* are spread along the sides of walls, and on the borders of woods; not regarding even the chilling of the frosts and snows. It comes out of the ground in a recent state, soft and white, having probably passed the previous state of its existence as a root-devouring grub. In towns it resorts to cellars, and issues forth at evening; but here it flies in numerous parties, that are all the day, and late into the evening, tumbling through each other. They are speedily dispersed, if one disturb them, and the scattered flies generally alight; but are withal sufficiently wary, and jealous of interference; taking flight readily at the spectator's approach. In similar localities there are numbers of *Borbori*, whose remarkable habit, when disturbed, is to push a way through about the roots of the grass; mount the blades; and when dislodged, to hurry over the walls in all directions. I find three species, *B. nitidus*, *B. equinus*, of which there is a small variety, that is perhaps the *B. geniculatus* of Macquart; and, rarer than the others, *B. niger*. There are also several species of the allied genus *Limosina*, of which as yet I am dubious; but one, not uncommon in woods, under withered leaves, agrees best with the *L. geniculata* of Macquart. In the same situations I find a pretty insect, which I name *Agromyza fulvipes* with some doubt; along with a *Phora*, remarkable, like all the genus, for its decided and rapid movements. It appears to be *P. fuscipes* of Macquart. In windows, on wall-tops, and near the burrows of rabbits, several individuals of *Blephariptera serrata* show themselves; also, but very rarely, *B. cæsia*, and a species related to *B. fenestralis*, but distinguished by the shorter setæ of the antennæ, the deeper tint of the abdomen, and the dark-coloured femora. It squats close to the stones on which it rests; and like those of the others, its larva is in all likelihood coprophagous. I took a single individual, a male, of *Helomyza flava*, from the trunk of a tree; which appears to have considerably anticipated its regular time of appearance. *Scatophaga squalida*, both sexes, is widely distributed. *Aricia errans* basks in the sun, on stone walls, by the side of ploughed fields; and is by no means readily to be come at. Forming little bands in the sunshine, and scattered along the margin of rivulets, three or four minute species of *Chironomus* sail to and fro. A small species of *Molobrus*, with short antennæ and black legs, is dispersed here and there; in one instance I noticed it in the nest of the yellow ant; and on the top of a wall I met with the female of a species of *Cecidomyia*, for which I do not find any description. In marshy places, and among moss, there is a species of *Lonchoptera*, everywhere abundant, of a slaty-black colour, with the wings palest at their insertion. Several species of *Mycetophila*, and other fungivorous gnats, have appeared in damp, obscure situations; or frequenting the spruce fir, for which, perhaps on account of its resin, they evince a great predilection. Here also an individual of *Simulium reptans* appeared; a species which occurs in large bands in the woods in May, and is sufficiently tormenting, if it settle upon an exposed part of the body. Another very dark-coloured species also occurred, which, not having the description before me, I conjecture may be *S. nigrum*. Of this species Mr. Curtis (Brit. Ent. 765) remarks, that it appears in the "beginning of March, when a great number settled on a white beaver hat at Cobham, Surrey." In swamps, and on clear running streams among the crowded star-wort (*Callitriche verna*), small flights of *Clinocera stagnalis*, Hal., settle themselves. They have very much the habit of *Medeteri*, and their long legs, and the close, fine, white silvery down, with

which as in *Gerris* and *Donacia*, the under part of their body is invested, prevents their receiving injury from the turbulent element, on which they spend their existence. The clouds on the transverse and intersecting nervures of the wings disappear in long kept specimens; as in a typical example, presented by Mr. Haliday, the wings are transparent throughout. Along with it, but showing a greater preference to shady places, there are numbers of a small *Medeterus*, with reddish legs, beautiful green eyes, and dusky wings. It is the *M. curvipes* (*Dolichopus*, *Fall.*) s. g. *Camptosceles*, *Hal.* The male is distinguished by its curiously bent intermediate femora and tibiæ. It abounds all the summer. The clayey swamps are frequented by scattered individuals of *Ephydra littoralis*. It is a sluggish fly, is easily taken, and moves by leaps rather than by fair flight. It cares not whether it alight on water or dry ground, being provided with a shining polished surface, that repels water like an oil-cloth. Here also I found a single specimen of *E. guttata* (*Hydrina vernalis*, *Desv.*) It belongs to the variety with the legs black, and the facial reflections white. The only other species was *E. quadriguttata*, *Meig.*, of which I could see no more than a single specimen. As this species is not characterized by Mr. Haliday in his 'Remarks on the Generic Distribution of the British Hydromyzidæ' (*Annals of Nat. Hist.* iii. June and August, 1839) I shall conclude these general observations by appending its characters, as well as those of *Phora fuscipes*, which I do not find recorded as a British insect.

Fam. HYDROMYZIDÆ, *Fallen.*

Gen. EPHYDRA, *Fallen.*

S. G. SCATELLA, *Desv.*

E. QUADRIGUTTA, *Meig. Dipt. Eur.* vi.

Face slightly prominent, yellowish clay-colour, with scattered blackish bristles; antennæ very dark brown, tips paler; front light brunneous, the sides shining, with an opaque central spot; thorax of a fulvous clay-colour, and an indistinct appearance of two dark lines (*injured*); halteres yellow: abdomen of a blackish green, rather shining: legs black, viewed from above, dark brunneo-cinereous, from beneath: wings dusky, a white spot near the first transverse nervure, a second very minute, near the extremity of the cell, which is the second posterior; a third the largest, in the first posterior cell; a fourth behind the second transverse nervure, placed nearly in a line with the first mentioned, and of the same size. Length 1 line.

Ephydra quadriguttata, *Macquart*, *Suites à Buffon*, ii. 538.

HAB. Kitchen Cleugh Dean, Berwickshire. It is recorded as British in *Curtis's 'British Entomology'*, 413.

Fam. PHORIDÆ, *Curtis.*

Gen. PHORA, *Latr.*

* *Marginal nervure bifurcate at the extremity.*

** *Submarginal nervure straight at its extremity.*

PH. FUSCIPES, *Macq. Suites à Buffon*, ii. 627.

Female.—Black; antennæ and palpi black, the latter with short black bristles, setæ of the former whitish at the extremity; front somewhat shining, with several minute elevated points, bearing black bristles; thorax rather shining, thickly punctulated, with a slight central channel, finely griseous, downy, several curved bristles on the

sides; halteres black: abdomen subfusiform, opaque, slaty black, with a dense, changeable, grayish down, some of the apical segments subcarinated along the back; two basal depressions, one on each side of the middle of all but the second segment, which has a single, semi-obverse, reniform impression, finely punctulated, and of a dark orange colour in the centre; first segment slightly pubescent on the sides, emarginate in the centre; third, fourth, fifth and sixth with a neat row of black punctures near the margins; beneath with the tip of the body darkest: breast polished and shining: legs black, the joints testaceous; posterior and intermediate femora dusky or blackish in the middle, anterior subttestaceous; tarsi dusky; femora much depressed and slightly channelled, intermediate smallest; intermediate tibiæ with two spines above the middle, posterior with one: wings subhyaline, vitreous, finely iridescent; nervures very slightly testaceous at their insertion; ciliæ of the thickened nervure short and little apparent; marginal nervure thickened above the bifurcation; first longitudinal nervure bent at the insertion, second straightish throughout, third slightly waved, fourth a false nervure, following the curvature of the inner lobe of the wing. Length $1\frac{1}{2}$ line.

Male.—Of a deeper black; antennæ and palpi velvety black, edged with a fine changeable griseous down: abdomen dull black; two first segments with the surface unequal; the apical segment polished, shining black: legs almost entirely black, excepting the testaceous joints and the subttestaceous anterior tibiæ; tarsi piceous.

HAB. Beneath withered leaves, Kitchen Cleugh Dean, Berwickshire, in March.

Obs.—The above description was drawn up from the inspection of a single male and female. I have since examined two other females, of a smaller size, which, although agreeing in other respects, want the impressions and carina of the abdomen mentioned as part of the female character. Perhaps they may have been partly occasioned by the shrinking of the larger specimen in drying.

JAMES HARDY.

Penmanshiel, by Cockburnspath, Berwickshire,
March 14, 1848.

Descriptions of the British Species of Bees belonging to the Genus Halictus of Latreille. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

(Continued from page 2044).

Sp. 5. HALICTUS LEUCOPUS.
Melitta leucopus, Kirby.

Female.—(Length 3 lines). Head and thorax bright metallic green; the antennæ slightly piceous at their apex beneath; the mandibles ferruginous at their apex. Thorax shining and regularly punctate; the tegulæ piceous; the wings hyaline, splendidly iridescent; the

legs clothed with white pubescence, that on the tarsi beneath is ferruginous. Abdomen black, with sometimes a little white marginal fringe on the first and second segments, at their extreme lateral margin.

Male.—(Length $2\frac{1}{4}$ lines). Head and thorax brassy green; apex of the clypeus, labrum and mandibles pale yellow, the apex of the latter ferruginous; the antennæ nigro-piceous above, beneath pale fulvous; the scape black. Thorax shining, closely punctured; the metathorax rotundate, frequently of a blue-green; the tegulæ piceous; the wings hyaline, splendidly iridescent; all the tarsi and the base of the posterior tibiæ pale yellow; the claws rufous. Abdomen black, shining, ovate; the base of the two intermediate segments depressed, and having a thin pale pubescence.

This is not an uncommon species, but not so abundant as *æratus*, and it is much more local.

Sp. 6. HALICTUS MORIO, *St. Fargeau*.

Hylæus morio, Fab., *male*. *Melitta morio*, Kirby.

Female.—(Length 2— $2\frac{3}{4}$ lines). Head and thorax brassy green, closely and minutely punctured; the antennæ fuscous at their apex beneath. Thorax shining; the metathorax rotundate, of a dark blue green; the tegulæ piceous; the nervures fuscous; the wings subhyaline, splendidly iridescent; the pubescence on the legs is white, and ferruginous on the tarsi beneath. Abdomen ovate, punctured and shining; the base of the two intermediate segments slightly depressed, and having laterally a little short pubescence, frequently obliterated.

Male.—(Length $2\frac{1}{2}$ lines). Head and thorax blue-green, closely and finely punctured; the antennæ as long as the head and thorax, beneath fulvous; the scape black; the apex of the clypeus pale yellow; the tegulæ piceous; the wings hyaline, splendidly iridescent. Abdomen linear; the base of the two intermediate segments much depressed, and having a little very fine short white pubescence laterally, frequently obliterated.

Closely resembling *H. æratus*, but the abdomen is more strongly punctured, and the metathorax atro-cærulescent.

Sp. 7. HALICTUS SMEATHMANELLUS.

Melitta Smeathmanella, Kirby.

Female.—(Length 3 lines). Bright metallic green, shining, closely and finely punctured; the antennæ fuscous beneath; the scape black;

the mandibles ferruginous at their apex. Thorax, the tegulæ and nervures testaceous; the wings hyaline, splendidly iridescent; legs black, frequently nigro-piceous, with the tarsi dark ferruginous. Abdomen very bright and shining; the base of the two intermediate segments laterally have a little short fine white pubescence; the incision at the apex ferruginous.

Male.—(Length $2\frac{1}{2}$ to 3 lines). Bright metallic green; the apex of the clypeus pale yellow; the antennæ as long as the head and thorax, fulvous beneath; the scape black; the apex of the mandibles ferruginous; the face and cheeks have a thin clothing of fine white pubescence. Thorax, the tegulæ piceous; the wings as in the female. Abdomen linear, nigro-æneous, shining; at the base of the two intermediate segments, laterally, sometimes is a little fine short white pubescence, frequently obliterated.

I suspect that the *Halictus viridis* of St. Fargeau is the male of the present species, but I hesitate to speak positively. This insect is rather local, but not rare about London. Mr. Kirby says the male has no white hairs at the base of the intermediate segments; but in recent specimens it will be found that they have a little white pile, as in *ærata*.

Sp. 8. HALICTUS MINUTUS, *St. Fargeau*.

Melitta minuta, Kirby.

Female.—(Length $2\frac{1}{2}$ —3 lines). Black; head and thorax closely and finely punctured; the antennæ fulvous beneath; the mandibles ferruginous at their apex. Thorax shining; the metathorax rotundate; the tegulæ piceous; the nervures nigro-piceous; the legs nigro-piceous, their pubescence white; the apical joints of the tarsi ferruginous. Abdomen shining, very delicately punctured; the margins of the segments nigro-piceous; beneath, the segments are ciliated with fringes of long pale hair.

Male.—(Length 2— $2\frac{1}{2}$ lines). Black; the antennæ as long as the head and thorax, fulvous beneath; the scape black; the face clothed with fine short white pubescence; the apex of the clypeus pale yellow, as well as the mandibles towards the apex, which is ferruginous. Thorax shining, punctured, not so closely as in the female; the tegulæ piceous; the wings hyaline, iridescent; the apical joints of the tarsi ferruginous. Abdomen linear, the intermediate segments slightly depressed at their base.

Some of the small specimens of the female of *H. punctulata* very

closely resemble this species; but in that insect the thorax is much more coarsely punctured, the punctures larger and not so close together as in *minuta*. This species is very abundant. I quite agree with St. Fargeau that this cannot be the *minuta* of Schrank. The habit of nidification is quite conclusive: none of the *Andrenides* burrow in wood.

Sp. 9. HALICTUS MINUTISSIMUS.

Melitta minutissima, Kirby.

Female.—(Length 2—2½ lines). Black; head very finely and closely punctured; the mandibles ferruginous at their apex. Thorax regularly punctured, but not so closely as on the head; a central dorsal impression and a scratch over each tegula; metathorax posteriorly rotundate; tegulæ piceous; nervures nigro-piceous; wings subhyaline, iridescent; legs nigro-piceous. Abdomen shining, oblong-ovate; the margins of the segments sometimes rufo-piceous.

Male.—(Length 2 lines). Black; the antennæ not quite so long as the head and thorax, fulvous beneath; the scape black; the apex of the clypeus, the labrum and the mandibles yellow, the latter black at their base and ferruginous at their apex; the tegulæ nigro-piceous; the wings hyaline, clouded at their apical margins, splendidly iridescent; the tarsi rufo-piceous. Abdomen ovate, slightly pubescent, the intermediate segments depressed at their base.

Of this species, the smallest of the genus, I possess a specimen, which is *Stylopized*: so small is the exerted head of the *Stylops* that it is not observable without a glass.

Sp. 10. HALICTUS NITIDIUSCULUS.

Melitta nitidiuscula, Kirby.

Female.—(Length 2—3 lines). Black; the antennæ fulvous beneath; the scape black; the apex of the mandibles ferruginous. Thorax slightly æneous, shining and punctate; the tegulæ and nervures piceous; wings subhyaline; the legs piceous or nigro-piceous; the tarsi rufo-piceous. Abdomen frequently nigro-piceous, shining and delicately punctate; margins of the segments slightly piceous.

Male.—(Length 2¼—2½ lines). Black; the face clothed with short white pubescence; the antennæ fulvous beneath; the scape black; the apical margin of the clypeus, the labrum and mandibles very pale

yellow, the apex of the latter ferruginous. Thorax shining and punctate; metathorax posteriorly smooth and shining; the wings subhyaline, iridescent; the extreme base and apex of the tibia and all the tarsi pale yellow. Abdomen linear, shining, delicately punctured; the margins of the segments nigro-piceous; beneath, the three intermediate segments have on each side a tuft of white pubescence.

This species very closely resembles, in the female sex, that of *H. minuta*, and is not easily separated from it; its thorax has, however, a slight æneous tinge, and its punctures are of different sizes, intermixed with very minute punctures, observable under a high power: in *minuta* the punctures are even and equal in size, and the neuration of the wings stronger than in the present species. The male is readily distinguished from every other species with which I am acquainted: it is remarkable for the little tufts of hair on the segments beneath. I possess four specimens of the female infested by *Stylops*.

Sp. 11. *HALICTUS LONGULUS*, n. s., *Smith*.

Female.—(Length 4 lines). Black; the head and thorax very closely and regularly punctured; the antennæ slightly nigro-piceous towards the apex beneath. Thorax rather coarsely but closely punctured, thinly pubescent at the sides, and on the metathorax laterally, which is rotundate; the tegulæ nigro-piceous; the nervures piceous; the wings subhyaline; the legs have an ochraceous pubescence, that on the tarsi beneath is fulvous; the tarsi ferruginous. Abdomen elongate, closely and delicately punctured; the basal segment very smooth and shining; the margins of the segments nigro-piceous, regularly clothed with a short pale pubescence, most dense at the sides and apex; the margins of the three intermediate segments depressed.

This very distinct species was captured at Bonchurch, in the Isle of Wight, in the month of July, by Mr. Charles Bowring, and obligingly presented to me by that gentleman. The form of the abdomen most resembles that of a male. The species is easily distinguished from any other with which I am acquainted. I possess two specimens of the female, but do not know the male.

Sp. 12. *HALICTUS LEVIS*, *St. Fargeau*.

Melitta lævis, Kirby.

Female.—(Length $3\frac{3}{4}$ lines). Black; the head and thorax closely punctured; a few scattered fulvous hairs on the face and disk of the

thorax, more dense on the sides; the tegulæ nigro-piceous; the wings hyaline; the nervures piceous; legs nigro-piceous, the pubescence pale fulvous, bright fulvous on the tarsi beneath; all the tarsi ferruginous. Abdomen widest towards the apex, nigro-piceous, darkest towards the apex, very smooth and shining: the apical segments have a fine short pale pubescence; the margins of the segments beneath have a long thin fringe of pale hair.

This species was unique in the Kirbyan cabinet until the last season, when the son of the Rev. Mr. Dawson captured a single specimen in the Isle of Wight, which I detected amongst a collection of bees made in that locality. Mr. Dawson obligingly presented the specimen to me, and I have therefore been able to point out some additional peculiarities,—Mr. Kirby's insect having now lost its head, and being much faded and mutilated. The male is not known. I suspect the species is extremely local; mine came from Ventnor. So exceedingly smooth is the abdomen, that no punctures are observable, even under a Codrington lens. The species is easily discriminated: the abdomen may be termed subclavate in form.

Sp. 13. HALICTUS VILLOSULUS.

Melitta villosula, Kirby, *male*. *Melitta punctulata*, Kirby, *female*.

Female.—(Length $3\frac{1}{2}$ —4 lines). Black; a little thin pale pubescence on the face; the apex of the mandibles ferruginous. Thorax shining, regularly, deeply, but not very closely punctured; the metathorax rotundate; the wings subhyaline, iridescent; the nervures nigro-piceous; the pubescence on the legs pale ochraceous; on the tarsi beneath it is fulvous; the apical joints of the tarsi ferruginous. Abdomen subovate, shining, very delicately and closely punctured, the basal segment very smooth and shining; a little thin pale pubescence at the sides and towards the apex; that at the apex is pale fulvous.

Male.—(Length $2\frac{1}{2}$ lines). Black; the face clothed with short white pubescence; the antennæ not quite so long as the head and thorax, fulvous beneath; scape black. Thorax shining, regularly but not closely punctured, clothed with griseous pubescence, frequently obliterated on the disk; the tegulæ nigro-piceous, the nervures the same; wings hyaline, iridescent; legs nigro-piceous; the tarsi rufopiceous. Abdomen subovate, convex, shining, regularly but very delicately punctate, also having a thin rather long pubescence towards the apex.

I have no doubt upon my mind as to the propriety of uniting the sexes described as distinct species by Mr. Kirby. I have taken the two in company on many occasions, and once found punctulata in great abundance in Hampshire: a colony had established themselves in the pathway of a garden; here I took the males in company. Where colonies of bees are found, the males are frequently found early in the morning, and not to be met with later in the day. This species appears to be generally distributed.

Sp. 14. HALICTUS MALACHURUS.

Melitta malachura, Kirby.

Female.—(Length 4—4 $\frac{3}{4}$ lines). Black; the head and thorax closely punctured; the apex of the mandibles ferruginous. Thorax, the tegulæ nigro-piceous; the wings subhyaline; the nervures piceous; the pubescence on the thorax is pale fulvous; the disk nearly naked; the pubescence on the legs is pale fulvous, on the tarsi beneath rufo-ferruginous; the apical joints of the tarsi ferruginous. Abdomen oblong-ovate, smooth and shining, widest towards the apex, clothed, except the basal segment, with a short, pale, fulvous, downy pile, visible in certain lights, more dense towards and at the apex; the margins of the segments narrowly piceous; the segments beneath have a long pale fulvous fringe.

This insect I found not uncommon, some years ago, in the neighbourhood of Brentford, which is the locality named by Mr. Kirby; also near the suspension-bridge, Hammersmith. I never met with its male. The species is easily distinguished by not having the usual marginal fascia on the abdomen, for although that is common also to punctulata, and three or four of the smaller species, still malachurus is a much larger insect than any other destitute of the marginal fascia. The single specimen which Mr. Kirby described from is one of the smallest I have seen. I captured this species in July.

Sp. 15. HALICTUS ABDOMINALIS.

Hylæus abdominalis, Panzer, male. *Apis bicincta*, Schrank? *Halictus albipes*, St. Fargeau. *Andrena vulpina*; Fab., Panzer, female. *Halictus vulpina*, St. Fargeau. *Halictus terebrator*, Walckenaer.

Female.—(Length 4—5 $\frac{1}{2}$ lines). Black; head and thorax closely punctured; the face thinly clothed with fulvous pubescence. Thorax

thinly clothed with fulvous pubescence on the disk, more densely so on the sides; the metathorax rugose, truncate posteriorly; the wings subhyaline, slightly clouded at their apical margins; the tegulæ piceous; the nervures ferruginous; the legs have a rich rufo-fulvous pubescence, that on the tarsi beneath is rufo-ferruginous; the apical joints ferruginous. Abdomen ovate, shining, and very delicately punctate; the margins of the segments are pale rufo-piceous, and have a thin fascia of fulvous pubescence, except the basal one, which has only a little laterally; the basal margin of the second and third segments has an interrupted fascia of white pubescence, the latter sometimes almost or entirely obliterated; the apex fulvous; beneath, the pubescence is fulvous.

Male.—(Length $3\frac{1}{2}$ — $4\frac{1}{2}$ lines). Black; the face has a clothing of short white pubescence, slightly stained with yellow at the base of the antennæ, which are not quite so long as the head and thorax; the clypeus produced in front, more or less yellow at the apex; the mandibles ferruginous at their apex, and sometimes having a yellow stripe in the middle. Thorax very closely punctured, thinly clothed on the disk with pale fulvous pubescence; the tegulæ rufo-piceous, with a yellow spot in front; the wings hyaline, iridescent, and slightly clouded at their apical margins; the four posterior tibiæ, at their base and apex, the anterior pair, with a line above, yellow; all the tarsi yellow, with the apical joints ferruginous. Abdomen, the first segment, except the extreme base, and the whole of the second and third segments, red; at the basal margin of the second and third segments, laterally, is a patch of white pubescence, beyond which is a black dot.

Var. 1, with a black spot in the centre of the second and third segments.

Var. 2, with a broad black stain on the second and third segments, leaving only the margins and sides laterally red.

Var. 3, only the margins narrowly red.

Var. 4, the margins only narrowly rufo-piceous.

The synonymes of this species, as quoted by St. Fargeau, and also by Walckenaer, are not altogether satisfactory: St. Fargeau refers the male to the *Apis bicincta* of Schrank, but the description of that author is too brief to be relied upon; it would suit, equally well, two or more distinct species. I think the female is the *Andrena vulpina* of Fabricius's 'Syst. Piez.' As far as the description of that author goes it suits our species very well. The *Halictus terebrator* of Walckenaer is undoubtedly synonymous, yet, although that author was of the same opinion, he, regardless of all laws of priority, sunk the name given by

Kirby. Since the male is the *Hylæus abdominalis* of Panzer, I have adopted his name for the species: the red-banded variety has hitherto been considered distinct by all authors, but it is only a variety of the dark-coloured male described in the 'Monographia Apum Angliæ.' Last September I captured great numbers of both sexes mingled in community, and in July I took several pairs *in coitu*: it is one of the most abundant species of the genus; and it is remarkable, that in some localities I have observed that the males were almost all of the red-banded variety, whilst in others they were all, or nearly so, of the darker kind. The female is very partial to hard sandy spots in which to construct her burrows, which are very numerous in some localities.

FREDERICK SMITH.

5, High Street, Newington,
February 19, 1848.

(To be continued).

Notice of the Occurrence of Rare Coleopterous Insects, with Observations on their Habits; to which is appended the Description of a Species hitherto unrecorded as British.
By EDWARD W. JANSON, Esq.

Ocys tempestivus. This species is not uncommon at Colney-hatch during the months of August and September: it frequents the trunks of trees growing in damp places, lurking in inequalities of the bark at their bases in cloudy and bad weather, and in the bright sunshine visiting even their topmost branches; I presume in search of minute insects. It is exceedingly nimble on foot, and is secured with difficulty. I have occasionally taken it hibernating in crevices of the bark overgrown with moss.

Abdera bifasciata. Of this species, which, I believe, has hitherto occurred but seldom, and a specimen or two only at a time, I am acquainted with a colony in the decayed branches of an oak at Colney-hatch, where I annually secure many specimens in the month of July.

Abdera quadrfasciata. This species, like its congener, *A. bifasciata*, is a wood-feeder, and appears to be gregarious. I know of one locality only for this species, viz. a decayed branch of an oak at Colney-hatch, by beating which with a heavy stick, in the month of July, I have for several years past taken about half-a-dozen specimens. I must observe that it inhabits the interior of the wood, and that the branch must be struck with considerable force to dislodge it.

Phloiophilus Edwardsii. This variable species, of which the *P. Cooperi* is probably a variety, I have annually met with abundantly, in the month of June, in a copse near Colney-hatch, but which has recently been destroyed in constructing the Great Northern Railway. It is found on the dead branches of trees (I remarked it on those of the oak and hornbeam), in damp and shady places; and as I have invariably found it only on those overgrown with lichens, and observed that a tap insufficient to break

the branch caused it to be dislodged, I infer that it feeds on the lichens. I have occasionally met with it in similar situations at Southwood, Highgate.

Ctenicerus sanguinicollis. I dug two specimens (males) from loam, at the foot of an oak at Snaresbrook, in April last: the tree at whose base these specimens occurred had been wounded, and the soil beneath was saturated with the discharged sap, and contained numerous wireworms, probably larvæ of the present species. I obtained a fine specimen of the female of this species in June last, by sweeping herbage on a bank facing the river at Southend.

Tetratoma ancora. Of this variable species I have, during the last four years, captured nearly as many dozen specimens at Colney-hatch: it is a wood-feeder, and inhabits the rotten stumps of branches which have either been lopped off within an inch or two of the trunk or fallen from decay; on splitting these the insect is found concealed in its burrow after the fashion of an *Anobium*, e. g. *A. castaneum*. I feel satisfied that dead wood is its nidus, having always (with the exception shortly mentioned) taken it in this substance. It is possible that violent gales or other circumstances may occasionally rupture the branches in which it lives, and, dislodging the insect from its abode, it may seek a temporary asylum in moss. I have long been a collector of moss, and have only on one occasion (a day or two subsequent to the trees it inhabits having undergone lopping and trimming) met with the insect in such a situation. This species is found from the commencement of December to the end of May. I have taken it from the oak and hornbeam, but have not yet succeeded in rearing it from what I presume to be its larva.

Tetratoma Desmarestii. I had first the pleasure of taking this conspicuous species in the month of October, 1845, at which time I supplied the cabinets of Messrs. Waterhouse, Wollaston, Stevens and Smith, with specimens: notwithstanding repeated and fruitless search in the works of continental entomologists for a description agreeing with the species under consideration, the knowledge that there existed many books to which I had not yet been able to gain access gave rise to the fear that it might have been already described, and deterred me from announcing it as new and assigning it a name which should hereafter be sunk as a synonyme, and I preferred the risk of sacrificing that *éclat* which many (judging from their precipitate descriptions of supposed new insects) appear to think attends the discovery of an unrecorded species, to the stigma which, in my opinion, is attached to those who bestow a name on a conspicuous species previously described in a well-known work treating of the order to which the said species appertains. At the latter end of the past year, chancing to fall in with a copy of Latreille's 'Genera Crustaceorum et Insectorum,' I at once recognized the *T. Desmarestii* of that work as the insect I had taken at Henhault. I showed specimens to that accomplished entomologist, Dr. Schaum, then in London, who fully concurred with me that it was the species thus designated by Latreille, observing that he had seen the specimen which I had sent to Mr. Wollaston, and that it was of very rare occurrence on the Continent, which latter remark is fully borne out by Latreille, who says, "once observed in the month of December, in a *Boletus* on an oak, in the Bois-de-Boulogne, Paris."

As above stated, I first met with this insect in the month of October, 1845. I beat nine specimens from a partially-decayed oak-bough in Henhault forest: on visiting the same tree, on the 26th of September of last year, I again succeeded in capturing upwards of a dozen specimens: although on each occasion I devoted several hours to searching for the insect in similar situations in the neighbourhood, I was unsuc-

cessful; and I greatly fear, from the ravage which time had made, since my previous visit, on the only decaying bough on which this species was found, that the day is at hand when the nidus of *T. Desmarestii* will be no more. I feel satisfied that, like its congener, *T. ancora*, this species is a wood-feeder, feeding not on the bark, but in and upon the wood.

I will now conclude these rambling remarks by expressing my surprise that Mr. J. F. Stephens, who received his specimen of this insect from me with the observation that I intended shortly to notice its capture, should have recorded it in his list (Zool. 1996): if no actual merit attends the discovery of a species new to our Fauna, it is at least somewhat uncourteous to deprive the discoverer of the pleasure which I am sure every naturalist must feel in first announcing the capture of a well-marked species.

TETRATOMA DESMARETSII, *Lat. Gen. Crust. et Insect.* ii. 180.

Length $1\frac{3}{4}$ —2 lines. Brassy green or olivaceous, clothed with griseous pubescence, deeply and thickly punctured throughout, interstices shining: head pitchy black; mouth and antennæ pitchy testaceous, the basal joints of the latter a little paler; club large, dusky and pilose: thorax convex, transverse, considerably narrowed in front, dilated behind the middle; its base sinuated, rather narrower than the base of the elytra, and with two shallow fovæ; all its angles rounded; scutellum distinct, transverse; elytra with the lateral margins nearly parallel, slightly dilated posteriorly; beneath pitchy black, slightly pubescent, minutely and thickly punctured; legs pale testaceous. The colour varies according to maturity; young specimens have the elytra pitchy testaceous, with a greenish tint.

EDWARD W. JANSON.

4, New Broad Street, London,
February 29, 1848.

Notes on the Capture of Harpalidæ and the Allied Families, in the Isle of Wight.
By the Rev. J. F. DAWSON, M.A.

I SHALL select those species only which are of less general distribution; but must premise, first, that those noticed are principally from the *south coast* of this island, in a line extending from Black Gang Chine to the Culver Cliffs (there are, however, exceptions, which will be specified as the insects are enumerated); and secondly, that the season of their capture does not extend beyond the end of May in each year.

Drypta emarginata. This insect has already been recorded (Zool. 1043) as captured by myself in 1845 and 1846, previous to which it had not, I believe, occurred since 1815. It appears to be not only rare, but also extremely local here; for though I have taken it sparingly, both early in the spring and at the end of October, it seldom turns up. A friend of mine, being anxious to capture the species, once gave a drawing of it to a labouring man, desiring him to reserve anything he met with like it, in his horticultural pursuits. Some time after the man met and accosted me—"Please, sir, I found one o' them things as that gent gave me a pictur on, and I kept he some time, but 'n got away;" and when I expressed my doubts as to its being the *genuine*

article, he said, confidently—"Oh, yes, sir, I'm certain sure it was; for Jem and me look'd at 'n along with the pictur, and it was was just like he, *for it had gotten six legs and two horns on its head!*" It is rather inactive in its movements, and remains concealed partially or wholly in the ground during the day, or under stones, in a soil of stiff clay, full of cracks and crevices.

Dromius sigma, Dej. (*bipennifer*, Bab.) A dark variety, having the band on the elytra broader than in those specimens which we take at Whittlesea Mere. Local; under stones on the heath opposite Steephill.

Dromius spilotus, Dej. (*impunctatus*, Steph.) In considerable abundance in a ditch by the side of an arable field near Sandown, in April and May, 1846. Soil, a light dry sand.

Polistichus vittatus. One specimen, on the 25th of April, 1846, from the same locality as the last—not one in which we should expect to have found it; though if its habitat at all resembles that of the allied genus, *Cymindis*, it may probably occur on the high Downs at no great distance; and it would appear to be a strictly *vernal* species, as other recorded captures were made from March to April.

Dyschirius politus. Taken sparingly in May, 1845 and 1846, in a sandy situation near the shore between Luccomb and Shanklin.

Dyschirius aneus, Zeig. (*tristis*, Steph., is apparently the female). I have captured about twenty specimens in the same locality.

Trimorphus humeralis, Bonelli (*scapularis* and *confinis*, Steph.) Plentiful, in moss from Shanklin Copse, in April and May.

Sphodrus leucophthalmus. This species visits the sugar at night placed on trees for Nocturæ, which proves very attractive also to *Oncomera femorata*.

Argutor longicollis. Occurs near Ryde and Sandown, but not in great abundance.

Amara ——— ? (*tricuspidata*, Steph. Cab.) This species, which in form much resembles a *Bradytus*, is not the *true tricuspidata* of Dejean, and appears to require a name. It was in great profusion in May, 1846, among heaps of refuse left by a flood at Ryde; but I have not taken it since.

Bradytus fulvus, Dej. Found in sandy places near the beach at Ryde.

Harpalus serripes, Schön. (*stygius*, Wilk). Stretching downwards from the high headland which forms the eastern promontory of this island, and bordering on the cliff in the direction of Sandown, is a tract of arable land, comprising several fields, of a very light and arid sand, before you arrive at the clay, some one or more of which are every year fallowed and cleaned for turnips, when vast quantities of twitch are collected by the drags out of this kind of land, and thrown together into heaps, preparatory to being carted away or burned. By turning over these heaps in the month of May, an immense profusion of Harpali (as well as other allied genera, not to mention those of various separate divisions of Coleoptera) is found, chiefly of the common species,—*rubripes* in all its varieties (as *marginellus*, *azureus*, *fulvipes*, &c.), and amongst them *serripes*, *tardus*, *rufimanus* (var.), *anxius*, &c., occur; and in more limited numbers and less frequently, *annulicornis*, *attenuatus*, *perplexus*? and *lentus*? Of the two last I have met with but one specimen of each, and am compelled to attach a ? to the names.

Harpalus cupreus. By still continuing in the direction of Sandown, you come to a red clay soil, and here this rare species is now and then taken. As *serripes* and the others occur only in the sandy district, so this is found but in clay soils, here, at Ryde

and at Cowes. Unlike the other species of the genus, it is rather sluggish in its movements.

Harpalus semiviolaceus, Dej. (*thoracicus*, &c., Steph.) This species is locally abundant on stony banks in the chalk district of Ventnor. Thus serripes may be expected to occur in sandy, cupreus in clay soils, and semiviolaceus in stony and chalky districts.

Ophonus punctulatus and *nitidulus*. Scarce, under stones near the Culver Cliffs.

Ophonus obscurus, *azureus*, *puncticollis* and *punctatissimus*. All are very abundant species.

Trechus exiguus var. *luridus*, Dej. (*flavicollis* of the London cabinets). Apparently scarce here, as I have met with only four or five specimens, which were shaken out of moss.

Trechus flavicollis, Sturm. Of this extremely rare species (the true *flavicollis* of Sturm) only four examples have hitherto been captured in England, viz., a pair by Mr. Dale, near Lymington, Hants, and a pair in a damp sandy situation on the South coast of the Isle of Wight, in May, 1846, one of which was taken by my friend Mr. Wollaston, and the other by myself at the same time. Though I have paid frequent visits to the spot, it has not since turned up.

Trechus similis, Dej., Erich. (*ruficollis*, Steph.) Abundant in moss from St. Boniface Down. It is pretty plentiful in moory situations, where the heath grows; and I have found it in such at Weybridge, and on some high moors in North Wales.

Tachys obtusus, Sturm, and *maritimus*, Steph. Man. Both local, in sandy places. By looking for them on the ground, among the scanty herbage, they may be taken in company with *Limnichus sericeus* and *Georyssus pygmaeus*, &c.

Philonthus hæmorrhous. With the above, and from moss in winter.

Ocys currens. A single specimen was taken alive in my house last spring: I have no idea whence it came. The insect frequents sandy situations, of which we have nothing of the kind very near. The other species (*melanocephalus*) of this genus (for *tempestivus* of Panzer is not an *Ocys*, but is identical with *Trechus minutus*, Fab.) is very abundant in damp sandy places, between Lucomb and Shanklin.

Peryphus maritimus and *ustus*. The former abundant; the latter scarce, on the sea shore south of the island, in company with *littoralis*.

Peryphus nitidulus. This species is not found on the South coast, but in great profusion running over the wet clay slopes on the edge of the shore, to the westward of Cowes.

Lopha pusilla, Gyll. Not uncommon near Ryde.

Stenolophus Skrimshiranus, *Lymnæum nigropiceum* and *Blemus pallidus* (which last, however, is ascertained by Dr. Schaum to be distinct from the *pallidus* of Sturm, and will require a change of name) have already been noticed (Zool. 1359). The two latter are found only on the shore at some depth among the fine shingle; the former in one solitary damp spot near Niton, among dead leaves and refuse. All three are very local; they may, however, be taken nearly all through the winter.

J. F. DAWSON.

Ventnor, March, 1848.

Capture of Three Specimens of Calosoma Sycophanta at Brighton.—Being at Brighton during the summer of 1843, I met a friend, who informed me that he had taken a curious green insect, crawling upon the gravel-walk of the esplanade opposite Brunswick Square. Upon opening the box wherein it was confined, I was astonished at beholding a brilliant male of that rare beetle *Calosoma Sycophanta*, which, although three weeks had elapsed since it had been captured, was still alive: it is now in my possession. My first impression was, that it had been brought into the Channel by some homeward-bound vessel, and had flown ashore; but I am now convinced it is a British specimen, as I have since been fortunate enough to receive two others from the immediate neighbourhood.—*William Curtis; Ponder's End, Enfield, Middlesex, March 17, 1848.*

Occurrence of Carabus clathratus in Sutherlandshire and the Hebrides.—When on our late tour, my brother took two specimens of *Carabus clathratus* in Sutherlandshire and three in Harris: it seems to be by no means uncommon in these localities.—*W. M. E. Milner; Tadcaster, March, 1848.*

Capture of Coleoptera at Whittlesea Mere.—I spent a couple of days last July in Holme Fen, where I made the following captures, among many others.

Odacantha melanura.

Demetrias unipunctatus, Creutz (*monostigma*, Leach). Abundant, by shaking the bundles of sedge over my net.

Dromius sigma, Dej., and *bipennifer*, Bab.

Dromius longiceps. Three specimens of this rare species, which had not been taken for many years.

Dyschirius minimus, Curtis. Probably a mere local variety of *gibbus*.

Omasus aterrimus, *O. anthracinus*, *O. gracilis*, Dej., (*levigatus*, Steph.), *Oödes Helopioides*, *Trechus placidus*. These were on the mud among the reeds.

Silis ruficollis. Not uncommon, reposing on the flags at the edge of the Mere.

Anobium castaneum and *rufipes*.

Rhinonchus tibialis and *crassus*.

Pachyrinus quadri-tuberculatus and *Comari*.

Orchestes scutellaris.

Grypidius Equiseti.

Erirhinus schirrhatus.

Notaris Scirpi.

Galeruca rustica.

Haltica Cyparissiae, Steph.

Haltica Salicariæ. By sweeping.

On the same occasion I captured a pair of small Harpalidæ, which are certainly a new genus to the British list, but of which I am unable to ascertain the name. In the form of the thorax they appear to come very near *Olisthopus*. *Lycæna dispar* has become very nearly extinct: I could hear of only five larvæ having been taken, and very few of the perfect insect appeared that season.—*J. F. Dawson; Ventnor, March 6, 1848.*

Notes on the Halticæ of the Isle of Wight. By the Rev. J. F. DAWSON, M.A.

THIS interesting tribe, being (from the circumstance of their affecting peculiar plants) less generally distributed, have always proved more particularly acceptable to my entomological friends; and perhaps a notice of the various species which are found in this part of the kingdom may not be out of place, more especially as out of the whole number (about one hundred) which are found in England, nearly one half occur within six or seven miles of this place. My experience, however, does not extend beyond the beginning of June in each year, from which time till near Christmas I have no opportunity of ascertaining what further species our island possesses, in consequence of my absence, particularly during the autumn—that best of all seasons for this particular tribe.

Phyllotrata antennata. This species is extremely abundant on various early plants, but more particularly on the sunny sides of stone walls, where they may be found in great profusion, in company with *P. consobrina*.

Phyllotrata consobrina. By far our commonest species, and occurring as early as February. I have also taken it on the opposite coast. Such being the case, it is rather singular that it should so long have continued unique in Mr. Curtis's collection. Since, however, I rediscovered it (as recorded in the 'Zoologist'), that gentleman informs me he has taken it in his garden. I suspect that *dispar*, *Rudd*, is merely a variety of this species. I have never seen Mr. Rudd's specimens, but have been in the habit of taking females corresponding with his description; and these females, with red basal joints to their antennæ, are certainly the ♀ *consobrina*.

Phyllotrata atra. Abundant on hedges near Cowes, also in the copses at St. Lawrence, as well as by sweeping the herbage along the edge of the cliffs to the east of Sandown.

Phyllotrata nemorum. Too generally distributed.

Phyllotrata flexuosa. By no means abundant, but taken by sweeping, and from moss in winter.

Aphthona Pseudacori. Very abundant on *Iris Pseudacorus* in Newchurch Marshes, and at Ryde.

Aphthona Euphorbiæ. Very common on hedges and a dwarf species of nettle. An early species.

Aphthona atrocærulea. Not very common early in the spring.

Aphthona herbigradus. By sweeping, on the sides of the Downs, in April.

Graptodera oleracea. Plentiful, by sweeping in grassy places.

Graptodera Erucæ. Common on the hazel.

Graptodera Mercurialis. On the plant whose name it bears, and, as usual, in abundance.

Podagrica fuscipes. Of very early appearance, and in great profusion, on the dwarf mallow, on which it feeds.

Podagrica ærata. Everywhere in abundance on the bramble with us, though considered scarce in most parts of England.

Crepidodera ferruginea and *exoleta* do not appear till June, after which they probably become as abundant here as elsewhere, in the localities they affect. The former is found both in damp meadows and pond-banks, and also in the driest upland pastures, where not another beetle apparently has life (except indeed *Sphæroderma Cardui*): the latter is found in situations commanding some degree of humidity.

Crepidodera Modeeri. Plentiful in Newchurch Marshes, &c.

Crepidodera rufipes. Also abundant in grassy places.

Crepidodera Helxines, *fulvicornis* and *cyanea*. On willows and aspens, in profusion. These three (?) species, especially *fulvicornis*, are very variable in colour, as we know, exhibiting shades of golden, bronze, green, purple, &c., and these variations are not confined to the sexes uniformly; sometimes the bronze male is attached to a blue or green female, and *vice versâ*, and sometimes both sexes are of the same colour; so that if these three be, as I suspect, but one species, it might deservedly be called *variabilis*, in the fullest sense of the term.

Thyamis tabida. On *Senecio jacobæa*; a blood-red variety.

Thyamis flavicornis. I captured this species rather plentifully on the Charlock, in a ploughed field, near the spot where St. Catharine's lighthouse stands. It occurred in May, 1845.

Thyamis pratensis and *apicalis*. Not common, at least early in the spring.

Thyamis ochroleuca. This species does not occur early in the season, but was tolerably abundant in my garden, in the summer time, four or five years ago.

Thyamis Ballotæ. A very early and abundant species, on *Ballota nigra* in certain situations; for though the plant grows here in profusion, it is only in one or two spots I find the insect.

Thyamis dorsalis. This pretty species occurs very early, and in fact may be met with all through the winter, on *Senecio jacobæa*, in warm sheltered spots, open to the sun, and is pretty abundant in such places in March and April.

Thyamis melanocephala. Common in herbage and moss.

Thyamis atricilla. In meadows and grassy places, and from moss, but not abundant in the spring.

Thyamis thoracica. In the copses near Ryde and St. Lawrence, &c.

Thyamis fuscescens, *lurida* and *pusilla*. The two last most abundant.

Thyamis parvula. By sweeping the fine turf on the sides of the Downs: it occurs, as usual, in company with *Aphthona herbigradus*, sparingly, in April. The two species are generally found together, and I have taken them in similar situations, in September, at Mickleham.

Macrocnema Dulcamaræ. By no means common, and apparently local. I have taken about a dozen specimens, by examining the sunny sides of a stone wall, on warm days early in the spring, where they appear basking and enjoying themselves, and evidently prepared for a spring, so that it requires some address to secure them.

Macrocnema Napi and *erythrocephala*. Occasionally on oleraceous plants.

Macrocnema Spermogonæ. Local, but in some plenty in the early spring of 1846, from February to April. I have not since met with it here.

Macrocnema marcidæ. On *Kakile maritima*.

Macrocnema affinis. I have taken only one specimen: it may possibly occur, as the season advances, more freely.

Mantura rustica and *semiænea*. I have only met with two specimens of each, and they were shaken out of moss from a sandy common near Newchurch. None of the species of *Mantura* occur, I believe, very early.

Mantura obtusata. On the dwarf *Cistus*, in chalky soils, in April, 1848, sparingly; but it will probably occur more plentifully as the season advances, for I took it on the Gogmagog hills, near Cambridge, at the beginning of June.

Chætocnema aridella and *dentipes*. Both very common.

Chætocnema Sahlbergii. I swept two specimens into my net on the edge of Newchurch Marsh, and obtained one from moss last year.

Chætocnema aridula. One specimen, from the same locality, out of moss. It much resembles *aridella*, but the thorax is more finely punctured, and presents a very glassy appearance.

Sphæroderma testacea and *Cardui*. Abundant enough in the summer.

Apteropoda graminis. From moss, and by sweeping in the copses at St. Lawrence, &c., but not abundant. Some specimens are brownish copper, others a brilliant green.

Mniophila muscorum. I add this species, which is plentiful in moss from Shanklin Copse. Its attempts at jumping are anything but brilliant.

To the above species, which I have been enabled to enumerate as actually occurring, there are, no doubt, others which might be added, later in the season; as, for instance *Thyamis Verbasci*, in districts where the mullein grows (for that is decidedly an autumnal species); and, on the whole, I consider the island would well repay investigation in this group.

J. F. DAWSON.

Ventnor, March, 1848.

Note on Lyctus canaliculatus, Fabr.—The British Admiralty having ordered the use of the Acacia tree for building the most exposed parts of ships, it is interesting to know that even this hard and bitter wood is not free from the attacks of timber-boring insects. A solid, cubical and sound piece, above a foot square, which I had in my possession, was, in the space of a few months, entirely bored through in every direction by hundreds of the larva of *Lyctus canaliculatus*, Fabr., and reduced to a crumbling state. The borings were tortuous and more numerous towards the exterior part and in the *liber*, the central part of the block being left uninjured or nearly so. The perfect insect made its appearance on May 12th, and continued to come forth until the end of that month.—*Julian Deby*.

Occurrence of the Locust near Doncaster.—A locust was brought to me on the 5th of last September, by a man who had found it in a field at some distance from the town. He had it in a box, with some leaves of coarse grass, which it was greedily devouring. When I killed it—which I did by inserting a quill dipped in oxalic acid into the thorax—it emitted a cry somewhat similar to that of the house cricket, but exceedingly faint, and seemed very tenacious of life.—*John Hawley*.

Occurrence of the Locust at Bembridge.—In August, 1846, after nearly an hour's chase, I captured a fine specimen of the locust, in a stubble-field close to the sea, at Bembridge, Isle of Wight. I was informed that several specimens had been taken in that locality.—*Henry G. Barns*; 5, George Street, Whitechapel, April 8, 1848.

Zoology of the Indian Archipelago.

THE living creatures of the Eastern Archipelago are numerous and varied. In the vast woods, there so abundant and so extensive, the explorer may constantly hear the rush of the elephant and see his dark colossal form bursting through the thickets, at the same instant that his eye is attracted by some tiny lizard crawling up the trunk of a tree, or making its slow way noiselessly over the face of a damp rock at the margin of a stream. Four-footed beasts, birds of gorgeous plumage, and almost every variety of reptile and insect, are to be met with, though comparatively few are of a malignant or dangerous nature.

Borneo itself, one of the most extraordinary countries of the group of Twelve Thousand Islands, harbours an immense variety of living creatures. In the northern parts, in the recesses of deep forests, the natives say that the elephant exists, though it has not been seen by any modern traveller. Most probably, however, it does live, or did once live there, though it may now be extinct, as several teeth have been discovered in the vicinity of Cape Unsing. We are inclined to believe, that when research shall have been further extended, the elephant will be discovered treading the deep, and at present inaccessible wilds, where for ages he has lived in perfect security. If he be common, there must be a vast amount of herbage growing wild in the interior.

It has been ascertained, that in the remotest marshy forests of the interior the rhinoceros exists. It is seldom seen, and is said to be rare. The habits of this animal, however, lead us to conjecture that it may be much more common in Borneo than is generally supposed. Loving the dark jungle, it seldom crosses the path of the traveller, but rather haunts the least frequented spots, living on such vegetable substances as it can procure.

No lions, tigers, wolves, foxes or jackalls, are to be found in Borneo, but a species of panther has been seen, though not of a large size or sanguinary disposition. In appearance it resembles the famous hunting cheeta of India. The small Malayan bear is found on the west coast, and is also exceedingly common in the district inhabited by the tribe of Dyaks known as the Kayans, whose whole clothing is frequently made of this animal's skin. It also lives in the woods, feeding on vegetables, and eating honey with avidity when it can procure it. Oftentimes it is seen climbing to the tops of the tallest tapang palms, in search of the wild bees' nest. The large Malayan bear is common all over the country, and affords excellent sport to the European settlers at Sarawak: its flesh is coarse, insipid, and quite devoid of fat, not much sought after by Europeans, but greatly relished by the natives.

Wild pigs are abundant. Though the Dyaks are constantly employed in hunting and setting traps for them in the jungle, so that thousands and tens of thousands are slaughtered every year, they still keep multiplying in an astonishing degree. There are two kinds; the large, long-legged, bristly, brown pig, mostly inhabiting the sea-shore districts, and the white, short-legged, barrel-bodied pig, which lives chiefly in the interior. Both species subsist on vegetable substances, devouring everything of the kind which comes in their way, especially fruits, of which they are ravenously fond, which accounts for their always growing fat and well-flavoured in the fruit season. Pork forms one of the principle articles of food among the Dyak tribes. Wherever the traveller stops, at every farm, round every village, every town, city and

hanlet, pigs are seen foraging amid the offal and the vegetables which in all directions grow so luxuriantly.

The palandok is a small species of deer, the smallest indeed of the tribe. Its height is generally about eight inches at the shoulder. The whole body of this little creature is covered with a thick, glossy, soft, brown fur, which—with its eyes of the most melting lustre—render it a beautiful animal. It runs in pairs in the forest, feeding on grass and the blossoms of a certain delicate flower, which it eats with the greatest avidity. The lovely and lonely valleys of Borneo abound in the palandok, where it can obtain the sweetest and greenest grass, and be in the shade of the quiet copse woods. Notwithstanding its beautiful and elegant appearance, the palandok is often eaten, though it is much better fitted to afford similes for the poet than to form the *bon bouche* of an epicure.

The kijang resembles the antelope, except that it has horns, the points of which are bent forward. It is a very graceful animal, of a light brown colour.

Monkeys are found in immense numbers, and of the most various species. Borneo, indeed, is the only true native country of the ourang-outang, which is there known as the 'wild man of the woods.' There are two species of it,—the Mias pappan, which is the largest, and the Mias rembi,—distinguished also from each other by the abundant bunches of red hair and the cheek-callosities of the former, which is in every respect an extraordinary animal.

Many extraordinary stories are related of the Mias pappan: one, told by Mr. Hugh Low, whose excellent work on Borneo is full of such details, we may relate in few words. A Dyak, who owned a moderate farm, planted with sugar-cane, was much annoyed by the visits of an ourang-outang, which, coming in the night-time, committed great ravages among the sugar-canes, of which the animal is extremely fond. The farmer not at all relishing this destruction of his property, one night—when the moon was up and the sky unclouded—came forth armed with a spear, purposing to attack and destroy the robber. Hiding himself in a thicket, he remained motionless until the Mias came, and, seating himself on the trunk of a tree, commenced crushing and masticating the canes. The Dyak now cautiously approached, and succeeded in inflicting a wound on the ourang-outang, with the spear with which—in addition to a sword—he was armed, as these animals when hurt fight ferociously. The Mias turned to see by whom he had been wounded, and perceived, coming down the trunk of a tree towards him, a bear, probably only with the intention of sharing his meal; but the ourang-outang, who did not see the man, fancied the bear the aggressor, and began to punish him accordingly. The Dyak, fearing lest they should see and both fall upon the real offender, made off as fast as possible, his flight being somewhat accelerated by the fear caused by the grunting of the one and the growling of the other combatant. Next morning, on returning, he found the bear dead on the spot, and not far distant the Mias had dragged himself to expire.

The enterprising Mr. Brooke and his companions in Borneo often enjoyed the sport of hunting the Mias pappan. On one occasion a large specimen was seen seated amid the branches of a lofty tree springing out of a great forest lake. A pursuit was immediately commenced, and in a short time the devoted brute fell with a heavy splash into the water. One peculiarity of this animal is, that when pursued and wounded, instead of endeavouring to escape, it retreats to the summit of a lofty tree, and there deliberately weaves itself a nest among the branches, where it sits till death eases it of its sufferings. The whole race is indolent and sluggish in its movements, and indifferent to the presence

of men, which may be accounted for by the fact that few explorers have as yet traversed the woods where the Mias is to be found, and that the forest is little used to be disturbed, and not apprehensive of danger. Some of the animals are exceedingly tall and powerful, being more than a match for a full-grown and strong man. The method adopted by the Dyaks when they wish to catch one is as follows. Having discovered the animal in a tree, they approach without noise, and as quietly as possible cut down all the trees around the one he occupies. Being previously provided with poles, some with nooses attached to the ends and others forked, they fell the isolated tree, when the Mias, confused and entangled, is beset by his pursuers, noosed, forked down, and seized without much further difficulty. Mr. Brooke, in his recent series of journals, states, that the Mias wanders about a good deal during the full of the moon, but remains sluggish while the moon is young. The natives attribute this to a fever which seizes these animals at the new moon.

The 'wa wa,' or long-armed ape, is the most beautiful of the monkey tribe. It is very gentle, with soft bright eyes. Its colour is gray, with the exception of the face, hands and feet, which are jet black. This pretty little animal is exceedingly delicate, living on herbs and flowers. It is abundant in the jungles of Sarawak, where it may be heard, early in the morning, uttering that strange note which has been compared to the noise made by water being poured out of a bottle. The affection of these animals when domesticated is remarkable; they lie back when they see any one who has been kind to them, leap upon his breast, and throw their arms around his body, just as a child will embrace its mother. If suffered they will remain in this position for hours, and they utter a plaintive cry when removed.

The moniet is a pretty little monkey, with a long tail and grayish fur: it is easily tamed, and when domesticated its antics are exceedingly amusing.

The long-nosed or proboscis monkey has seldom or never been brought alive to Europe. It may be considered almost as the most curious of its species. In size it approaches the ourang-outang, though far less repulsive in appearance: it is furnished with a long tail and remarkably fine and soft fur, of a fawn colour: its eyes are small and bright; its teeth sharp and long; but the most curious feature in its face is the nose, which is long and fleshy, and not unlike a very large specimen of the human nose: indeed the whole face bears a great resemblance to the face of a man.

There are innumerable other specimens of the monkey tribe to be met with in Borneo, including a disgusting short-tailed baboon. All kinds of these animals are destructive to agriculture, as they pillage and destroy the rice crops, throw the fruits, and commit all manner of devastation in the Dyak farms. The consequence of this is an unremitting war between monkeys and men. As evening approaches, the banks of every river absolutely swarm with monkeys, leaping from bough to bough with incessant noise, while underneath, the natives—armed with every conceivable weapon of destruction—assault their enemies, both for the purpose of getting rid of them, and also to procure their flesh, which is highly esteemed as an article of food.

Alligators abound in every river and creek of Borneo: some of them are of an enormous size, and extremely destructive. Every one is too well acquainted with the outward appearance of these animals to need a description here. We shall, therefore, content ourselves with describing a few of its peculiarities as observed on this island. It is a most destructive animal. Men, dogs, monkeys and cats are alike its prey, for which reason the natives of Borneo use every possible means to destroy it. The usual method is to attach a cat or monkey to a stick floating on the surface of the water, and above the

alligator's reach is generally placed a bamboo cage, containing a dog, whose loud and continued howling attracts the animal to the spot. Fastened to the stick by a short piece of cord is a long rattan, which—when the alligator has swallowed the bait and is annoyed by the piece of wood in his throat—discovers the place to which he retreats, which is generally some woody creek. The natives now assemble in great numbers, beating drums and waving flags, and address the alligator with all sorts of dignified and conciliatory expressions,—“Will the rajah come on shore? Will the rajah please to be quiet?” The monster is then seized, bound hand and foot, if we may so speak, with ropes, and lashed between two canoes, which are then floated to a convenient spot, where he is despatched. On one occasion, when Mr. Brooke's followers succeeded in capturing an alligator, a grand consultation was held as to the mode of disposing of the king, as he is termed. One party maintained that rajah met rajah, and that, therefore, it would be highly improper to sacrifice His Highness; that if he were praised and flattered he would behave genteelly and as became the dignity of his situation. On the other hand it was argued, that, though true enough it was that on this occasion rajah met rajah, yet if this alligator were soothed and caressed, and treated with such marked honour, the consequence would be that the whole crocodile community would become vain, unmanageable, puffed up with pride. Long and earnest was the council. Mr. Brooke at length, taking into deep consideration the inconvenience of harbouring so voracious and unwieldy a monster in his grounds, decided he should instantly be killed. He was accordingly despatched, his head severed from the trunk, and the body left exposed as a warning to all other crocodiles inhabiting that river. In the stomach of this animal was found part of the body of an unfortunate Malay fisherman, who had been seized while occupied with his nets and lines. The alligators often fight ferociously with one another: they have been found with several inches of their bony noses broken off in consequence of one of these encounters. As the ‘Phlegethon’ steamer proceeded up the Rejang river, Captain Mundy observed numerous alligators basking in the sun, with their bodies half immersed by their own weight in the mud. The six-pounders of the steamer opened fire on them as she passed. For the sake of security for the Dyaks we trust these animals will speedily be exterminated.

The marshy jungles of Borneo, and Sarawak especially, are about sunset alive with these animals, and with their inferior brethren, the lizards, of which there exist in the island so abundant a variety that to attempt an enumeration of them here would be out of the question. In every pool, by every spring, beneath every stone, on the trunk of every tree, on the face of every rock, in the waters of every river, creek and stream, the alligator and the lizard are to be met, filling the air with harsh and dissonant noises. Some of these latter are exceedingly beautiful, especially those resembling the chameleon.

Otters, civet and polecats are numerous in Borneo. The great ant-eater is also to be met with: it is provided with strong scales, of a horny texture, and when attacked will roll itself up into a ball, as the hedgehog, being in this position better defended by its scaly armour.

The flying fox is another Bornean animal. In the gloomy forests it is continually soaring far in the air with steady flight, flapping its wings, and uttering at intervals a shrill cry. Then a rustling sound may be heard among the bushes, and porcupines in great numbers will rush out with hideous noise, and trot along with the greatest agility. The slow-paced lemur now attracts attention as it creeps along, by its beautiful,

soft, woolly fur, and enormous jet black eyes. Often will this little creature be seen proceeding, with a low wailing cry, over the ground, with its young clinging tenaciously to its fur. These animals are generally torpid during the day, but active after nightfall.

The mustang is a sportive little animal, with a long tail and moderately soft fur : it is extremely good-natured, but a great thief. When domesticated on board ship, it will climb the rigging, and poke into every corner it can find access to, purloining sugar and eggs. Often is it thrown overboard as a punishment, but for this it cares little, swimming like a fish. One which Captain Belcher had on board the 'Samarang' used to accumulate the bananas it stole for a long time, and then luxuriate at its ease on the delicious fruit, until the whole was exhausted, when it would commence its depredations anew.

The land tortoises are of two species, one of which attains considerable size ; some have been seen two feet in length. They dwell in the deep, damp woods, living on vegetables.

Every marsh and swamp abounds with frogs, which croak in dismal concert through the night. Their greatest enemies are the snakes, which are found in great numbers. Some of the varieties are unknown to European naturalists. The crested cobra of India is found in Borneo, with the superb but deadly sun-snake, and the golden-ringed viper,—so called from the beautiful golden rings which encircle its black body. This species is very common in the mangrove swamps, where it sleeps among the tree tops till the water of the rain floods has subsided sufficiently for it to seek its food, when it descends in search of prey. Another kind is called the hammer-headed viper, from its enormous head : it is very venomous, but sluggish in its movements. The size of some of the Bornean snakes may be imagined, when we state that one of the Python species was caught and killed, which contained in its stomach an undigested deer, horns and all. None of these large snakes are venomous, as their great strength secures the destruction of their prey. There is one of this tribe, the flower-snake, which is exceedingly beautiful : it is small and graceful, with skin resembling rich velvet, of a superb green colour above and yellow under. This little creature is not in the least degree venomous or otherwise hurtful : the Malays entertain a strong partiality for it, using it as a toy. Another snake very much resembles the harmless one, which has been the cause of many accidents. An European gentleman was once very near losing his life through mistaking the one for the other, and attempting to play with it. Water-snakes abound in the rivers ; some of them are poisonous.

Among the birds of Borneo, of which we can here speak at no length, there is one of which the Dyaks entertain a very great awe. When, on a journey, they hear its note, nothing can induce them to advance in the direction from which it proceeds : they will stop and tremble violently, and immediately take another road. Mr. Dalton in his excursions often tried to induce his followers to show him this bird : this, however, he could never prevail on them to do. As soon as the note of ill omen was heard, they would seize the English traveller by the arm, and, pointing with gestures of apprehension to the sky, force him a contrary way. The voice of this bird is like that of the blackbird, equally sweet, but much louder and stronger.

The woods, jungles and gardens of Borneo teem with insect life. Butterflies, of gaudy colours and graceful shapes, are everywhere seen flitting. Spiders, in almost all other countries of so repulsive an aspect, here appear under the most graceful forms and brilliant hues ; indeed some species of them may well be termed beautiful :

their well-shaped bodies and slender legs present every variety of colour, bright crimson and speckled blue predominating. The walking-leaf insect is very common: it generally hangs on a leaf of the guava tree during the day-time, but as night approaches it flutters swiftly about, its wings in motion resembling leaves. The various species of grubs are exceedingly curious: they are tinted with many colours,—red, yellow, yellowish pink, marbled crimson, black, carmine, light brown and sienna: they generally infest plantations and gardens. Grasshoppers larger than sparrows abound in the forests of Borneo: they are of a light green colour and very inactive, jumping about lazily in the underwood. Beetles are common: one species is of remarkable utility: it employs itself constantly in removing any filth which may happen to accumulate on the ground, and, spreading it abroad, materially assists the ripening of the soil. The manner in which they conduct this operation is curious in the extreme: the insect first rolls up a conveniently sized ball of dirt, in which it deposits its eggs, and then buries it in the ground. Sometimes scores of these black-coated gardeners are to be seen in the groves frequented by deer and pigs, busily at work.

The glow-worm of Borneo is indeed a magnificent insect. Each segment of its body is illuminated with three lines of tiny lamps, which present a most brilliant appearance to the eye of the traveller who may be proceeding through the woods after nightfall. It may be seen among the dead damp wood and rotten leaves, glowing with a bright light, and when placed around the finger it has been compared for beauty to a magnificent diamond ring.

Mosquitoes, the plague of the sojourner in the tropics, are of course to be met with in Borneo. They swarm in the forests, in the jungles, plains, and on the hills, and prove a constant source of annoyance. After a night bivouac, whether under the shelter of a house or in the open air, the face of the traveller presents an appearance similar to that presented by one suffering from the small-pox.

Fire-flies illuminate the banks of the rivers. Soon after sunset the foliage of the podada tree, whose elegant and graceful form well becomes the ornament, is covered with a perfect blaze of these beautiful little insects. Mr. Brooke particularly mentions the scenery on both banks of the Samaharan, which he says he has seen lit up by a trembling glow of brilliancy night after night, presenting a scene of fairy loveliness.

But, though we have yet only galloped through the Zoology of Borneo, and selected an occasional specimen here and there, if we delay any longer we shall leave ourselves no space wherein to touch on the animals living on any of the other islands of the Indian Archipelago: indeed we have already so far passed our limits, that we must only glance at a few of the living creatures which yet remain to be mentioned.

Tigers abound in many of the islands, among which Sumatra is most infested. In that country the inhabitants are so pestered and held in continual fear by these ferocious animals, that no man ventures abroad at night without a torch, of which the tiger is much afraid. These torches are made after a peculiar fashion. A piece of bamboo is hollowed and filled with dammar, an extremely inflammable substance which there abounds. The villages in this island appear after nightfall under an extraordinary aspect. Huge fires are burned at regular intervals around them, so great is the dread entertained of the tigers, who have sometimes been known to depopulate a whole village; yet a prejudice exists against destroying them, which not even the offer of reward can remove: indeed a Sumatran will rarely undertake a tiger hunt, unless he has been deprived of some dear friend by the jaws of that creature. Then,

when his full anger is roused, he will go forth on the errand of revenge, with as large a body of companions as he can collect together. Sometimes a large wooden cage is prepared, in which a dog or goat is secured as a bait. The tiger enters cautiously, and, touching an ingeniously-arranged spring, brings down upon himself the weight of an enormous piece of timber, which generally effectually maims him.

Another way of catching the tiger is practised. Some daring individual tempts the animal to pursue him, and manœuvring adroitly manages to cross a broad deep ditch or chasm, by means of a swinging rope: balanced half-way across the fissure in the earth is placed a platform of planks, which the tiger, imagining to be the means of traversing the obstacle, rushes upon, and is thus precipitated into the ditch, at the bottom of which are arranged numerous sharp stakes. Instances have occurred of a tiger being caught in a trap, upon whose body have appeared evident marks of the partial success of the last experiment. Another means adopted is that of noosing the animal's body with a lashing of rattans securely woven.

The tigers of Sumatra have been remarked to be the strongest in the world. They are said to break without difficulty the leg of a horse or a buffalo, and the largest prey they kill is without difficulty dragged by them into the woods. This they usually do in the second night, gratifying themselves on the first by sucking the blood only. Of this circumstance the natives sometimes take advantage to prepare for the destruction of their ferocious enemy, by placing a tub of water, strongly impregnated with arsenic, near the carcase. The tiger, gorged with flesh, is tempted by thirst to drink, and thus poisoned soon perishes in the indulgence. Their chief sustenance, however, is the unfortunate monkeys, with which the woods abound. The Sumatrans say the tiger allures the animals to their destruction by a certain fascination: the fact that the animal is fascinated, though not strictly true, is still true in the abstract. When a tiger or an alligator approaches a tree filled with monkeys, the latter, stupified with terror, crowd near the point of the branch under which the greedy brute is waiting to devour them as they drop, which terror and hasty movements render unavoidable. One superstition connected with this animal is curious to the last degree, and accounts for the reluctance of the natives to destroy them. The Sumatrans believe that the tigers are endowed with the spirits of the departed dead. Indeed, so strong is this belief, that the very mention of a tiger inspires the natives with awe. They say, that in some remote unvisited parts of the island there is a beautiful spot where the king of the tigers holds his court, and where a large community of the animals exists, their dwellings being huts thatched with *women's hair*. Thither every tiger on the island is said, at intervals, to repair, in order to give an account of himself and his proceedings.

Another custom which obtains in Sumatra, is to place fruit and vegetables at the entrance of any village the tigers may be seen approaching, in order that the royal brute may be propitiated. Whether or not his tiger highness is ever satisfied with these marks of respect deponent sayeth not.

The forests of Sumatra abound with elephants. These animals are gregarious, and, traversing the country in prodigious troops, cause incredible devastation, devouring the produce of the whole plantation, and leaving behind them wherever they go a broad track of desolation and destruction. But their greedy habits often prove fatal to them, for the native, apprised of the near approach of the elephant army, as it is called, and despairing of being able to direct its course, goes out into his plantation, and, splitting an immense number of the sugar-canes, inserts a venomous substance called barrangan into the clefts. Next day the elephants are found lying dead in great numbers in

all directions. Their ivory compensates well for the injury they have inflicted on the crops and cultivated ground. This animal is not fierce, and will seldom attack a man unless fired at, when it proves, as well may be imagined, a formidable antagonist.

The rhinoceros is also a native of Sumatra, where his horn is esteemed a powerful antidote against poison. A small and hardy horse, the obstinate, dull, capricious, but patient buffalo, the cow, the sheep, the common goat, the goat of the wood (resembling a gazelle), the Chinese hog, the hippopotamos, the bear, the dog, the cat, the otter, the sloth, the porcupine, the armadillo (very rare), a prodigious variety of monkeys, deer (some of them of an enormous size), squirrels and bats, constitute the other members of the animal kingdom of this great island, if we add an infinite multitude of birds and creeping things. Among the former is the famous Sumatran or Argos pheasant, called by the natives the 'coo-ow.' It is a bird of the most rich plumage, though not distinguished by gaudy hues. It has never been brought alive to Europe, as no one has ever succeeded in domesticating it: one month's deprivation of liberty will kill it. It loves the shady recesses of its native forests, having a great antipathy to light; and when sitting in its own quiet retreats, the Argos pheasant will make the wood echo with the plaintive 'coo-ow' from which it takes its Sumatran name.

Game-cocks are so universal in Sumatra, that no persons possessing any pretension to respectability, and even those who possess none, keep them. Fathers have been commonly known to stake their children, husbands their wives, sons their mothers and sisters, and all their property besides, on the issue of a battle. Dreadful quarrels, ending in assassinations, are often the pernicious consequences. Quails, and a small bird resembling the magpie, are often trained up in the same manner as fighting-cocks. The latter endeavour to seize each other by the tongue.

The Malayan tapir, found also in Sumatra, resembles in appearance partly a hog and partly a small elephant. It is a quiet creature, very docile, and easily domesticated. It was first discovered to exist in Sumatra by Sir Stamford Raffles, who says, in one of his letters, that searching inquiries convinced him that there lived in the woods of that island an animal of the tapir species, with a narrow riband of white around the belly and back.

The catalogue of zoological specimens, each distinct and of a different species or class of animals, which Sir Stamford Raffles collected in Java and Sumatra, would occupy many pages, and would not perhaps be interesting to the general reader. We therefore pass it by, and, taking a flying leap to the little islands of Talang Talang, observe the peculiarities of the turtle, so abundant in all parts of the Indian Archipelago. A broad sandy beach, admirably adapted for the purpose, attracts the turtles, and there they deposit their eggs. From the middle of June to the middle of July, it has been computed that forty thousand eggs are laid there nightly; that is, two hundred turtles each deposit two hundred eggs.

On a little hill near the shore of the larger island is erected a large dwelling-house, surrounded by a stockade, and furthermore guarded by two formidable pieces of artillery. Here reside forty men, whose sole business it is to collect the eggs, which they sell at the surrounding markets with good profit.

The turtle comes about sunset out of the water, and, after wandering for some time on the beach, buries its nose in the ground, and commences scooping the sand with its hinder feet in a most deliberate and easy manner; often pausing to rest. When a hole of the depth of three or more feet has been made, the turtle takes its station over it, and lays the eggs at intervals for a long time. It then fills up the empty

space with sand, which it beats down firmly with its hinder fins, and then retires in a tortuous direction, winding and twisting up and down, backward and forward, and finally enters the sea at a distance from its nest. The reason of this precaution is, fear lest its track should serve as a guide to the egg-seekers, who, however, ensconced in a little watch-house at a considerable distance, observe and mark the spots well. The turtle never returns to look for its offspring, a great many of which emerge from the sand and make directly for the water, when they are devoured in vast numbers by the sharks and other fish.

In Java the custom prevails of eating the flesh of those oxen, horses, deer and goats which have been employed in labour, when maimed or otherwise rendered unfit for service. Among the beasts of prey found in this island are several species of tiger, the wild cat, the leopard, the jackall, and a large species of wild dog; also the rhinoceros, and alligators as big as crocodiles, to which reverence is paid by the superstitious natives. Monkeys, squirrels, stags, deer, wild oxen, buffaloes, and musk animals also abound.

There exist in Java twenty species of serpents, among which that species of boa constrictor called the Anaconda is the largest. It sometimes grows to the length of thirty feet, and, hanging from the branches of trees, devours monkeys and other animals in great numbers.

Of birds, two hundred different species have already been discovered in Java. Many of them are of superb plumage and exquisite song.

Reptiles of all kinds are abundant.

In the various islands of the Oriental Archipelago are to be found many species of bats, one kind of which it has been said is so large that its wings extended are as much as a man can stretch with both his arms. They are very numerous in the interior woods, and may easily be killed. They are never tamed, as they cannot exist unless in their wild state.

Almost every island in the Indian Archipelago abounds with buffaloes, oxen and cows, whose flesh is admirable. Were it not for the vast distance intervening between the mother country and the regions of Insular Asia, immense numbers of these animals might be imported, and, even as it is, steam may render this not an impossible result. Pork, too, is one of the most common articles of food. Hogs, as we before observed, multiply so rapidly, that—despite the vast numbers slaughtered in all the islands, where all classes and all castes and sects, not even always excepting the Muslemen, eat of their flesh—the woods and jungles are absolutely alive with them.

Gillolo abounds with buffaloes, goats and deer, also wild hogs; there are but few sheep, and no wild beasts. The wild hogs frequent the place where sago palms have lately been cut down, and the flour or pith has been taken out. There they feast and fatten upon the remains. Seen at a distance in large numbers on these spots, with their young black pigs, they have been compared to flies crowding on a table.

Among the most gorgeous of the feathered creation of the Indian islands is the bird of paradise, of which there have been already written so many descriptions, that we need not here enter into any details concerning its outward appearance. These birds generally fly in flocks of forty or fifty together, and seldom alight on the ground, as from the singular disposition of their feathers it is difficult for them to rise again. Trees, therefore, form their usual resting-place. They are likewise unable to fly with the wind, which would ruin their plumage, but take their flight constantly against it,

cautious not to venture out in hard blowing weather, a strong gale frequently obliging them to come to the ground.

There is a large snake, the bukkoron, often found on Timolson hill, in Magnidando. This hill, during great floods, resembles an island. There is a story told of a man seized by one of these enormous snakes, which, having thrown him, swallowed his leg and thigh. The snake not being able to get higher, the man pulled out his knife and cut the monster in the mouth, which then disgorged him; the man, with leg and thigh much torn, survived.

The reader must by no means imagine we have presented him with anything approaching to a complete sketch of the zoology of the Indian islands; to accomplish that in the pages of the 'Zoologist' would be impossible. We have, as we before observed, merely galloped through the animal kingdom of the Eastern Archipelago, and selected a few specimens here and there. The birds we have scarcely glanced at; the fishes we have left unnoticed. Perhaps on a future occasion we may touch on these interesting subjects; subjects with which, considering the rapid multiplication and strengthening of the relations which have so lately sprung up between these kingdoms and the little-known regions of Insular Asia, the public cannot be too well acquainted. Meanwhile, from what we have already said, it will have been seen, that—abounding as they do in metal of all descriptions, in timber, in the productions of agriculture, in the treasures of the floral kingdom, indeed in all those numerous and varied materials which go to the making up of the wealth and prosperity, the beauty and attractiveness of a country—the islands of the Indian Archipelago afford most of the varieties of known living creatures, and will doubtless, in future years, offer to the naturalist new fields for speculation and discovery. Birds, beasts, fishes, reptiles and insects, abound in the islands and the seas of the Eastern Archipelago.

Report of the Microscopical Society's Meetings.

[I have to regret that the interesting Reports printed below were not furnished me at an earlier date. I have reason to hope they will in future be transmitted with greater regularity.—*E. N.*]

October 27, 1847.—J. S. BOWERBANK, Esq., F.R.S., President, in the chair.

The minutes of the preceding meeting were read and confirmed.

A. Rosling and Wm. Delferrier, Esqrs., were balloted for, and duly admitted members of the Society.

Certificates in favour of Charles Sterry, Esq., of 38, Trinity Square, Tower Hill, and W. S. Gillett, Esq., of 17, Upper Gower Street, were read, and ordered to be suspended in the meeting-room.

Two books were presented, and the thanks of the Society voted to their respective donors.

The President announced that the late E. Quekett, Esq., had bequeathed his microscope to the Society, and the instrument was placed on the table.

A paper by George Busk, Esq., being 'Observations on the Shepherd's Purse Coralline of Ellis—the *Notamia Bursaria* of Fleming,' was read. The author commenced by stating, that nearly all the modern descriptions of this zoophyte were taken from that given in a work published in 1755, by Mr. Ellis, who appears to have been the first who noticed it. This description is, however, incorrect; and consequently those founded upon it must be considered equally, if not more so. This he stated to be the more remarkable, as the zoophyte is by no means uncommon on the south coast of England, particularly in the neighbourhood of Swanage, in the Isle of Purbeck, where it appears to live and flourish in from five to ten fathoms water, throughout several miles of the coast, extending from that place to Bournemouth. This zoophyte, according to Mr. Busk, consists of a creeping, tubular, radical portion, from which the celliferous or polypiferous branches arise. This radical part is composed of a central discoid portion, not unlike the body of an *Ophiura*, with branches radiating from its periphery, and creeping, in a nearly straight course, over the surface of the object upon which the zoophyte is growing. Besides these radical tubes, celliferous branches occasionally arise from the disc itself. The disc and its branches are both formed of a thick, firm, horny envelope, containing a coarse granular matter, of a yellowish white colour. These radical tubes give off, at irregular distances, secondary branches, which soon terminate in the celliferous portion. Each of these secondary branches, however, arises from a distinct compartment, formed by a thick septum, which shuts off the opening of the lateral branch from the main cavity of the parent tube. The celliferous branches are dichotomously divided at pretty regular intervals. At each bifurcation, one of the branches has usually three pairs of cells superiorly and one single cell below, while the other has but two pairs of cells above and one below; but this arrangement is not constant in all specimens. The cells are of two kinds,—a smaller sort, like short tobacco-pipes, and a larger, which are the polypiferous cells. The walls of the smaller cells or cups are tolerably thick, but brittle and opaque, from the quantity of calcareous matter they contain. The mouth has a sinuated margin, which rises anteriorly into a sharp curved beak, like that of the cuttle-fish, which is of a horny nature. In each cup there is also a moveable beak, which opens or closes the aperture, as may be required: these two beaks constitute an admirable instrument for prehension, and that such is their office is rendered probable by the existence of muscles, by which they are moved. This beak or mandible during life opens suddenly with a sort of snap, and is closed slowly. The muscles exhibit transverse striæ, and thus approximate to those in the higher classes of animals. The polype cells are many times larger than the cups: they are closed at the top, and, contrary to what is stated in all previous descriptions of this zoophyte, there is no connexion whatever between these cells and the cup-like cells placed immediately above and behind them. The orifice of the cell is on the anterior face, is of a crescentic form, and its lips appear to be strengthened by a thin band of horny material: it contains an ascidioid polype, having ten tentacula and no gizzard. The mode of interconnexion of the various parts of the polypidom was shown, and the margin which the polypiferous branches originate explained by reference to figures and diagrams. The author observed, that in the course of his examination of other species of *Bryozoa*, he had also observed the striation of the muscular fibre in several, and thence concluded that it would be found to be generally the case in that class of animals.

November 24, 1847.—J. S. BOWERBANK, Esq., F.R.S., President, in the chair.

The minutes of the preceding meeting were read and confirmed.

A Report of three papers 'On the Structure of the Teeth,' by A. Nasmyth, Esq., was presented by Mr. Legg, and the thanks of the Society voted to him for this present.

A certificate in favour of George Arthur Knighley Howman, Esq., 34, Brompton Square, was read, and ordered to be suspended in the meeting-room.

Charles Sterry and W. S. Gillett, Esqrs., were balloted for, and duly admitted members of the Society.

A paper by George Jackson, Esq., 'On Micrometers,' was read. After some remarks on the necessity of having some mode of accurately ascertaining the size of minute objects subjected to microscopical examination, and also on the means generally employed, together with an explanation of the method of ascertaining the value of the divisions of an eye-piece micrometer with a particular object-glass, and also a comparison of the relative advantages of the positive or negative eye-piece in observing ruled glass micrometers. The author proceeded to describe the micrometer which he had constructed, and which was laid before the meeting. Short bold lines are ruled on a piece of glass, and, to facilitate counting, every fifth line is drawn longer, and every tenth still longer, as in the common rule. Very finely levigated plumbago is rubbed into the lines, to render them visible, and they are covered by a piece of thin glass, cemented by Canada balsam, to prevent the plumbago from being rubbed out. The slip of glass thus prepared is placed in a thin brass frame, so that it may slide freely, and is acted upon at one end by a pushing-screw and at the other by a slight spring. Slits are cut in the negative eye-piece on each side, so that the brass frame may be passed along the field in the focus of the eye-glass, which should also allow of adjustment for different eyes. The brass frame is retained in its place by a spring within the tube of the eye-piece, the object is brought to the centre of the field by the stage movements, and the coincidence between one side of it and one of the long lines is made with great accuracy by means of the small pushing-screw. The divisions are then read off as easily as the inches and tenths in a common rule. The author concluded by pointing out the best methods of ascertaining the value of the divisions of the micrometer, and with some plain directions for its use.

Another paper, being 'A Description of certain Arrangements for effecting the Measurement of Microscopic Objects, with some Observations relative to the Expression of Minute Dimensions,' by George Shadbolt, Jun., Esq., was also read. The principle adopted by Mr. Shadbolt was stated by him to be that of viewing the object and the micrometer with the same power, using a contrivance for keeping the size of the former in view while inspecting the latter. This is effected by means of moveable calliper points, placed in the focus of the eye-glass of the eye-piece, which points are adjusted by a couple of screws with milled heads, projecting on each side of the eye-piece. He gave his reason for preferring points to parallel lines,—considering the measurement from point to point to be capable of much greater accuracy than that from one parallel line to another, in consequence of the difficulty of getting the object exactly at right angles to both lines. He then described the mode of constructing his micrometer. A disc of metal is to be made quite flat on one side, and is to be of the same diameter as the diaphragm plate, with a similar central aperture, a trifle smaller. This disc is also to have two slots cut in it, parallel one to the other, one on each side of the central opening, rather longer than its diameter. The disc is to be attached by

pins to the diaphragm, so as to be parallel to it and about one-eighth of an inch distant from it, with the flat side towards the eye-glass. Two pieces of metal, about a quarter of an inch wide, must also be fixed to the disc, vertical to it and at right angles to the slots, for the screws to work in. The calliper points are to be placed across the slots, so that they may project half-way over the central aperture, and are to be attached to small metal springs under the disc, by means of screws or rivets, so as to allow of lateral motion from one end of the slots to the other: these springs keep the points always in focus. Two screws with milled heads work through holes in the vertical pieces attached to the disc, and give motion to the points, and a helix of wire is placed round the screws to steady the motion. Mr. Shadbolt described two other modifications of this construction, the principle remaining the same. He concluded with some remarks on the mode of expressing the value of the measure of an object, recommending the uniform adoption of the decimal notation in preference to the fractional, as being not only more simple, but also more definite, and therefore more easily understood by all.

December 22, 1847.—J. S. BOWERBANK, Esq., F.R.S., President, in the chair.

The minutes of the preceding meeting were read and confirmed.

George A. K. Howman, Esq., was balloted for, and duly elected a member of the Society.

The list of gentlemen proposed as the officers and council for the year ensuing was read, and ordered to be suspended in the meeting-room.

A short notice by Mr. M. S. Legg was read, being the correction of an error in the description of the construction of the Nicol's prism, given by him in his paper 'On the Application of Polarized Light in Microscopical Investigations,' published in the last number of the Transactions of the Society.

A paper entitled 'Observations on the *Anguinaria spatulata*,' by Geo. Busk, Esq., was read. This paper was stated by Mr. Busk to be a continuation of his former communication on the *Notamia Bursaria*, read at the October meeting of this Society. This zoophyte—the *Anguinaria spatulata* or snake coralline of Ellis—is stated by Dr. Johnson to be "not common," but was found by Mr. Busk in great abundance in the same locality as the *Notamia*. It is parasitical upon *Fuci*, and is not unfrequently associated with other polypes on the same plant. Its character, as given by Dr. Johnson, appears to be incorrect in several particulars, which it was partly the object of this paper to point out and rectify. It consists, like all its congeners, of two distinct portions, the radical part and the polype cells. Its origin or base is a more or less rounded disc, of small size, probably divided into compartments, from each of which arises a primary branch or tube, which is directly continued into a polype cell, but without any internal communication. The polype cell is at first continued in a line with the radical branch, but soon turns up at a right angle and assumes an erect position; after ascending in a nearly straight line for a certain distance it curves with a gentle sweep, and terminates in an expanded extremity, at the point of which—and not at the side, as stated by Dr. Johnson—is the opening through which the polype protrudes. The continuation of the radical portion is effected by the formation of a bud at the angle where the polype cell turns up, which bud becomes a narrow tube, in all respects similar to the primary one, and after running a short distance turns up in a similar manner and terminates in a polype cell, and so on continuously. The radical

tubes and polype cells are formed of a horny material, not soluble in weak acid, strengthened in most parts by a deposit of calcareous matter. The cell contains an ascidian polype, which has perhaps twelve tentacula and no gizzard. The muscular fibres are of great proportional length, and are distinctly marked with transverse striæ. The striking resemblance of the terminal expanded part of the polype cell to the head of a snake has led to its very appropriate generic name. The aperture is terminal, of a crescentic form, the lower lip being composed of or strengthened by a horny half ring, resembling a horse-shoe in shape, to which two pairs of muscles are attached,—the one for the closure, the other for the opening, of the aperture. The paper concluded with further remarks on the anatomical structure of this polype, and on the consequent necessity of either removing it, together with *Gemellaria loriculata* and *Notamia Bursaria*, from the family *Eucratiadæ* of Dr. Johnson, or of modifying the character of that family as far as respects the situation and construction of the aperture of the cell.

J. S. BOWERBANK.

Child Suckled by a Periah Bitch.—When my father was with his regiment—the 8th Light Dragoons—in India, he witnessed a very remarkable fact relative to the history of a dog, which, from its novelty, may prove interesting to you. A Periah bitch, belonging to Lieut. Heyman, of the 8th Light Dragoons, at Cawnpore, brought forth a litter of pups, which were destroyed a day or two afterwards. It was observed that the bitch had induced a child, blind of the ophthalmia (the son of a matin or sweeper) to suck her: how this was managed in the first instance there is no evidence to prove; but when it was discovered, a circumstance so unusual attracted many witnesses, and was not immediately put a stop to. In a little time after this discovery, Lieut. Heyman noticed that all the food given to the bitch was taken by her to the boy, and that she would not touch it until the child had given it up. My father upon one occasion gave the leg of a fowl to the bitch, with which she made off to the blind boy, and pushed it into his mouth: the boy ate part of the flesh and gave back the bone, which the bitch greedily demolished. Lieut. Heyman frequently kept the bitch two or three days without food,—an experiment made at the request of friends, who contemplated seeing the bitch devour the food,—but, true to her general practice, she made directly to the blind child and offered him the food, which she would not taste until he had done with it. This extraordinary attachment and feeding the blind boy continued until the regiment embarked for England, the lad being then ten years old. The bitch had become very old, and was destroyed.—*H. G. Harrington; 1, William Terrace, Turnham Green, March 11, 1848.*

Anecdote of a Terrier.—A fine terrier, in the possession of a surgeon at Whitehaven, about three weeks ago, exhibited its sagacity in a rather amusing manner. It came into the kitchen and began plucking the servant by the gown, and in spite of repeated rebuffs it perseveringly continued in its purpose. The mistress of the house, hearing a noise, came down to inquire the cause, when the animal treated her in a similar manner. Being struck with the concern evinced by the creature, she quietly followed it up stairs into a bed-room, whither it led her; there it commenced barking, looking under the bed and then up in her face. Upon examination, a cat was discovered

there, quietly demolishing a beef-steak which it had *feloniously* obtained. The most curious feature in the whole case is, that the cat had been introduced into the house only a short time before, and that *bitter enmity* prevailed between her and her canine companion. No doubt anecdotes of a similar nature are common enough ; still I venture to send you this, knowing you think such worthy a place in the amusing pages of the 'Zoologist,' where *facts*, however common, however simple, are accumulated as in a great store-house, from whence the philosophical naturalist may derive materials wherewith to construct a new theory or to support an old one.—*E. J. R. Hughes ; St. Begh's, March 31, 1848.*

Anecdote of a Terrier.—On the 19th of May, 1834, a party who had been living at Quedgeley, within two miles of Gloucester, sailed from Bristol to New York, intending to settle in one of the western states of America : they took with them a wire-haired terrier bitch, which whelped during the passage. The distance from Quedgeley to Bristol is 27 miles. From New York they proceeded in a steam-boat up the Hudson to Albany, 190 miles ; thence to Schenectady, 15 miles, by railroad ; to Syracuse, 140 miles, by tow boat. In the hurry of disembarking at Syracuse the bitch was missed, and all trace of her lost. Some time after arriving at their destination, one of the party wrote to his father, and amongst other things mentioned the loss of the bitch, which animal, at the moment the letter arrived at Quedgeley, was lying down in front of the kitchen fire of the house she had been originally taken from, having been absent from her original home ten months. It is conjectured (for nothing is known) that she found her way back to New York, and thence to Bristol, but how or in what ship is a matter of doubt : that she *did* make this extraordinary tour is beyond the slightest question. She ended her days in a drain at Quedgeley, being smothered while rat-hunting there in 1841. She was the property of Mr. Richard Guilding, formerly of Quedgeley, who went to St. Louis, in the State of Mississippi, and returned from thence to Hanley Castle, Worcestershire, at which place he is now residing.

Extraordinary Friendship of a Cat and Turtle Dove.—Well do I recollect returning home from school for my Christmas holidays, and finding that our family of cats (housed in our outbuildings, for keeping vermin in minimum) was numerously increased ; and my first request was, "Oh, do come and see the kittens." One of the tribe, "a little tabby," was the general favorite ; and he seemed to be somewhat conscious of this pre-eminence, for he pushed his companions aside, and battled stoutly for a full share of the contents of the milk-pan : the very necessary result was, that "Dick" (for so we named him) grew a fine young cat, and his sleek coat and purring habits, as he came and rubbed his head against your foot, or fondly sprung upon your shoulder and smoothed your cheek, won't easily be forgotten by many who think of early days as lovingly as do I. A friend of ours wanted a cat ; and as the well-known tenderness of this family was almost proverbial, we decided upon sending them Dick as a present. Oh ! what a sensation it caused when we put him in the basket for his new destination ! and what thoughts we entertained upon the probability of seeing him in his old haunts one morning, he having found

"There was no place like home ;"

but we were not acquainted with cat nature so well as we opined ; for Dick had sense, like many men, to keep a "good berth" when they have found one. He was put on a little soft stool before the fire, fondled, petted and spoiled ; for there he sat all day long

in the parlour at his mistress' feet, purring and sleeping, and indulging in his golden day-dreams. It chanced that, a few months after Dick's location in his new home, his fond mistress received a present of a dove from a distant relative, whose cognomen was "Tom,"—"pretty Tom." And a pretty dove he was! Oh, how proud to take his morning ablutions, and plume his soft feathers! how sly in turning round his expressive eye! and how affectionate as he pushed his bill against your closed lips to kiss you! how joyous his coo-coo! and how gladsome a companion for Dick! See—see them both in the parlour, eating of the same crumbs; all the animosity that should naturally exist is lost,—the best of friends from the very first trial. Bright are the eyes with joy, as all the family look at the interview, when Tom is put on the carpet. He goes strutting towards Dick, cooing in his most glorious manner,—and Dick listens, charmed by the Orphean notes, and makes no stir, no spring, no movement. Oh! happy animal and bird! your friendship has begun; and, so happily formed, how long will it continue? Sure, too good to last; but no, for sixteen years were they daily companions, never once disagreeing or betraying any hostility. Often was Tom perched on Dick's soft back, enjoying the warm fire; and often, by instinct led, they travelled abroad into the garden, and walked proudly round the little paths. Oh! happy friends! but their happiness, being earthly, was limited; for poor Dick, in December, 1846, pined and died. The loving attentions he experienced are often needed by poor starving outcasts; but yet they availed not, for his hours were numbered: he died, and was buried in the garden. His companion survives, for this last Christmas I saw him; but in his eye we all fancied that brightness was not found which in earlier days we certainly saw there sparkling.—*E. R. Twinn; Bowburgh, near Norwich, March, 1848.*

Extraordinary Instance of Parental Care in a Rat.—Some traps had been set about our premises for the purpose of taking vermin, when, a few mornings ago, a large female rat was discovered in one of them, caught by one of its fore legs, but squatting over a nest containing six young ones. The animal, during the previous night, had actually—with the fore paw, which was free, and probably with the assistance of her hind feet—contrived to scrape together a quantity of the neighbouring grass, and formed the nest, thus providing for the warmth and comfort of her young, though tortured with pain, and one might have supposed almost disabled for such a preparation by her position in the trap.—*A. B. Hemsworth; Shropham Hall, Larlingford, Norfolk, March 16th, 1848.*

*Catalogue for Eggs.**

[A friend of mine—the head of a large manufacturing establishment—obligingly sent me a ticket of admission to what might be called the *opening* of a new Steam Apparatus, for feeding with regularity a fire that was constantly to be kept in. On my arrival I found quite a little company assembled, and the proprietor pointed out the

* 'A Systematic Catalogue of the Eggs of British Birds, arranged with the view to supersede the use of Labels for Eggs.' By the Rev. S. C. MALAN, M.A., Vicar of Broadwindsor, Dorset. London: Van Voorst. 1848.

advantages of the plan, the beauty of the apparatus, its connexion with a vast steam-engine at work in a distant apartment, and many other particulars highly interesting to the audience, but which would here be out of place: we all admired—all applauded; and, retiring to my friend's private dwelling, ate a hearty lunch to the success of his machinery. A month elapsed, and I had occasion to call a second time: the apparatus was still bright and beautiful as ever, but at rest, and the varlet of a stoker—such is the caprice or obstinacy of boykind—was feeding the fire with an old iron shovel that was not worth a shilling. Now to the application! Mr. Malan's volume of 170 pages is well arranged, printed on good paper, well hotpressed, neatly bound, handsomely lettered on the back and side: it is a luxury to possess such a book, and then, moreover, it may be made serviceable; there is space for inserting all the particulars that the most pains-taking naturalist in the world could wish to make; but I think for all this he would soon return to his customary pennyworth of labels,—in fact, to the shovel that had already grown old in the same service. However, it is but just to so ingenious a mechanician (the term is more appropriate than 'author') that he should explain his own machine.—*E. N.*]

“The object of this Catalogue is, to offer a substitute for the prevalent use of *printed labels* for eggs.

“An Oologist who feels how important it is that every egg in his collection should bear a distinctive mark, to prevent its being mistaken for some other species like it in colour or in shape, will have experienced also the great inconvenience which arises from the common practice of *labelling* eggs, for the purpose of distinguishing them. Not only do labels disfigure the larger specimens, to which alone they are applicable, but they become altogether useless as regards the smaller eggs; since, in that case, they prove considerably larger than the eggs for which they were intended. Nor is the other method preferable, of *writing* in ink upon the smaller eggs, either the name, or a number corresponding with a catalogue of the collection. For *writing* spoils the appearance of an egg as much as a label does; and in the event of an error, the name or the number cannot be rubbed out without risk of injuring the egg.

“The following plan, however, may seem to possess fewer disadvantages. To gum* over the hole through which the egg was blown, a round piece of thin white paper, larger or smaller according to the size of the egg; and on that ticket to write the number of the species in this Catalogue, with its distinguishing letter *a, b, or c*. This ticket (which may be tinted to match the colour of the egg), thus fixed over the hole, presents the two-fold advantage of adding to the solidity of the egg, by keeping the edges of the hole from chipping; while, in the event of a mistake in the number inscribed upon it, the ticket may easily be removed with a little warm water, without risk of injury to the egg. And, when by accident an egg thus ticketed has been mixed with other species of similar shape or colour (as may frequently happen in several of the genera), a simple reference to its number in the Catalogue will at once enable the collector to restore it to its proper place in the collection.

“In the present advanced state of Oology, few collectors wish to limit themselves to only one specimen of each species; but all those who collect for a scientific purpose endeavour to obtain, not only all the eggs of *one nest*, but also *varieties* of the species;

* * *Gum arabic* dissolved in water is preferable for this purpose to either *glue* or *paste*; from its not being liable to be attacked by insects.”

which, in the case of the commoner birds, sometimes amount to a great many. Most of those duplicates are kept separately, the systematic collection embracing, besides the eggs of one nest, or the *number laid* by each bird, only one or two of the most striking varieties.

“This Catalogue is intended to apply only to such a collection; according to which arrangement all the eggs of *one nest* will, of course, bear the *same mark*. If e. g. a collector possess several eggs of the common buzzard, viz. three found in one nest in Westmoreland, one bought of a dealer, and the other obtained in exchange; every one of the three eggs found in the same nest will bear on the ticket, 17 *a*; the egg purchased, 17 *b*; and the egg procured by exchange, 17 *c*; and the particulars relating to those several specimens will be entered in the Catalogue under the 17th species, thus:—

“17 sp. FALCO BUTEO, *Lin.* The common Buzzard.

“17 *a*. Three eggs found in one nest, in the wood ——— at ——— in Westmoreland. April 18——.

“17 *b*. ? Purchased of *N*——— dealer, at ——.

“17 *c*. Exchanged with *N*——— for the eggs of *N*. ——.”

Ornithological Observations in Norfolk for March, 1848.—Another example of the hooper (*Cygnus ferus*) was killed about the 25th of February. A very fine adult male gyrfalcon was shot about the 24th of February, at Beeston, near Cromer: this bird was very fat, and showed no marks of having been in confinement; it measured, when stuffed, 23½ inches from the point of the beak to the tip of the tail: there is of course now no further reason for excluding this beautiful species from the list of Norfolk birds (see Zool. 1301). Early in March, three adult peregrine falcons (two males and one female) were taken in the neighbourhood of Thetford. On the 11th of March an Egyptian goose—apparently a wild bird—was shot upon Ormesby Broad, and a few days afterwards another specimen was shot in the same neighbourhood. On the 25th, a tufted drake, in company with which were two ducks, was shot on the river Wensum at Cossey: this seems to be rather an inland locality for a member of the oceanic family of ducks at such an advanced period of the spring; but it is possible that the birds were resting on their northerly migration, upon which occasion they more frequently cross the land than in their southerly autumnal movements (Zool. 1390).—*J. H. Gurney, W. R. Fisher; April, 1848.*

On the Nomenclature of Birds.—Some months since my attention was attracted by certain remarks from your correspondent, the Rev. James Smith (Zool. 1909), upon the subject of nomenclature, in which the name *Fuligula ferinoides*—given to a species of duck lately separated from the common pochard (*F. ferina*)—was somewhat severely criticized. The subject has again been referred to (Zool. 2063) by your correspondent Mr. Newton. It appears, as might have been expected, to have occurred to both these gentlemen, that in criticizing the old name it was necessary to propose a new one; and, anticipating that they would do so, and confidently looking for some valuable suggestion upon the subject, I commenced the perusal of their remarks with great interest and attention. Assuming that the names ‘Paget’s pochard’ and ‘Fuligula

ferinoides' are objectionable, we turn to those proposed to be substituted by your correspondents; both are of opinion that the white bar on the wing is a character which should form a foundation for the name, and Mr. Newton suggests the names 'F. leucoptera' and 'white-winged pochard.' It is unnecessary for me to enlarge upon the difficulty of fixing upon a suitable name for this bird, when your two correspondents, whose suggestion is of course the result of a careful consideration of the subject, and of a close examination of the bird itself, have thus proposed a name at once incorrect and useless; incorrect, because—as you observe upon the wrapper of your last number—the bird is *not* white-winged; useless, because, amongst nine other British representatives of the genus Fuligula, the common pochard and the long-tailed duck are the *only* two which have *not* a white mark on that part of the wing. With respect to Mr. Smith's observation, that the bird is "degraded into a sort of inferior species or satellite," &c., the idea is certainly original, but I think unnecessary; and observing that in your Catalogue lately published you have printed the name in the same sized type as that of *F. ferina*, I conclude that you are of the same opinion. The name of *Regulus reguloides* is inapplicable to the argument, inasmuch as it contains a repetition in the same name of the *generic* appellation; in the case before us it is the adoption of the *specific* name of another bird which is objected to; moreover, as nobody uses it (I never even heard of it before), it should not have been mentioned. The principles upon which your correspondents propose to proceed, in reforming our ornithological nomenclature, are undoubtedly good; and when they have constructed a catalogue of names *to which no objections can be made* (and they must remember that all naturalists will not take their dicta, more than those of their predecessors, for law), I have no doubt that it will be gladly adopted. But the difficulty of carrying out these principles is very great. The habits of birds can only be accurately ascertained by repeated observations, and may even differ in the same species, according to the conditions under which it exists. There are several instances, in our present nomenclature, in which erroneous names have been applied to birds by eminent naturalists, in consequence of only a partial knowledge of their habits. But in many cases, including that of this new duck, the history of the species as regards its habits is a mere blank, and even if they were ascertained it is probable that they would not materially differ from those of *F. ferina*. In this case then, when we know nothing of the habits, and no external character presents itself from which a name may be taken, I maintain that, as some name must of necessity be given, it is better to give one which—whatever may be its defects—is at least sufficient to distinguish the bird from every other species, and does not impress upon the mind any erroneous idea of its habits or appearance. But it appears, from an observation of one of your correspondents, that this much-abused name of *F. ferinoides* not only possesses the advantages which I have mentioned, but actually conveys a most accurate idea of the bird in question. "The meaning," says Mr. Smith, "if it has any, of *Fulgula ferinoides*, is the *Fulgula* resembling the *ferina*." This is in fact precisely the meaning intended to be conveyed, and I must express my gratification at the testimony thus unexpectedly afforded to the excellence of the name. The English name, 'Paget's pochard,' was selected in accordance with a practice very common at the present day, and may or may not be a good one. The scientific name was clearly not translatable for the purpose, which, it will perhaps be said, is an argument against its goodness; but I can only repeat, that if your correspondents will find us a name not open to any objection, I have no doubt it will gladly be adopted. Lastly, I may observe that distinction is

the great object of all names ; if a name can be further made to convey any *correct* idea of appearance or habits, so much the better ; but where it answers the first purpose, and is otherwise unobjectionable, let your correspondents take warning by the tremendous catalogues of synonyms which impede the studies of our entomological brethren, and beware of what Mr. Smith calls "the rage for reckless changes in nomenclature."—*William R. Fisher ; Great Yarmouth, April 14, 1848.*

Nomenclature of Species.—With regard to Mr. Newton's suggestions on the subject of nomenclature of species (Zool. 2062), I beg to claim the editorial privilege of expressing an opinion. Mr. Newton has mixed up two very distinct questions ; *first*, the propriety of imposing good names in the first instance ; *secondly*, the propriety of changing imposed names for others supposed to be better. The *first* proposition needs no discussion : as an *abstract* (I will not say *practicable*) proposition it is perfectly sound. The *second* proposition, that of revising imposed names with a view to amending them, is unsound, on the ground that if we admit that a name may be changed once, why not change it twice ? why not thrice ? why not a hundred times ? Let us take Mr. Newton's example. He objects to the name of *Fuligula ferinoides* ; I admit that it is bad : he proposes *Fuligula leucoptera* instead ; this is much worse : the bird is not *white-winged*, and not more nearly approaching *white-winged* than many other ducks. Now, admitting Mr. Newton's proposition of giving the right of changing a name, every ornithologist would wish to change this changed name, for I may say, in the most friendly spirit, that I cannot call to mind a name more incorrect or objectionable. But as Mr. Newton's is only a *suggested* example, and was perhaps suggested hastily and without due consideration, I will cite an example of an attempted change of name boldly put forth under the authority of our greatest ornithologist. Mr. Swainson, with great ingenuity, demonstrated that the common hedge-sparrow was improperly named, and pleaded, with his usual eloquence of pen, that *shuffewing* was a better, nay a perfect and unobjectionable name : nobody controverted his opinion, but nobody adopted his suggestion or even gave it a consideration ; and the hedge-sparrow remains and will remain a 'hedge-sparrow' and a 'dunnock' while the English language endures. I cannot pronounce too emphatically that *priority is the only law I can ever consent to acknowledge in the nomenclature of species.*—*Edward Newman.*

Leicestershire Names of Birds.—It has frequently occurred to me, that a complete dictionary of the provincial and local names of our British birds would not only be on many accounts of great interest to the ornithologist, but is an absolute desideratum in the ornithology of these islands. Recent authors, it is true, have done much towards this desirable end ; but there is still, I am convinced, an immense number of local epithets of our more common species, that have never yet found their way into any list of synonyms. It may perhaps, at any rate, amuse some of the readers of the 'Zoologist' to become acquainted with the following list of the prevailing appellatives of certain of the more familiar of the fowls of Heaven, bestowed upon them by the natives of certain parts of Leicestershire (and probably also of the adjoining counties), whose dialect yet retains much of the "good old Saxon," and is as broad as the tire of a ten-inch waggon-wheel. It may be as well here to observe, that these rustics, though not very discriminative of species, are more so than in most equally rural districts, and many of their names are exceedingly appropriate, if not always euphonious. In this county, then, where the barn owl is very common, that bird is known to the natives as a 'padge,' or 'padge owl,' while the tawny owl is the 'owl,' and the long-eared and short-eared species are both 'horn owls.' The green woodpecker is a bird

also well known in most parts of the county, and is here aptly characterized as the 'rind-tabberer,' *i. e.* rind or bark-tapper. The verse-immortalized sound, however, of

"The woodpecker tapping the hollow beech tree,"

is, I regret to say, yearly becoming less frequently heard. The great spotted woodpecker is in these parts generally a very rare bird, but, when it does occur, the keeper who has shot it will—if he does not throw it to his ferrets—dispose of it to his friend the skin-cobbler (I beg his pardon, the taxidermist) as a 'French magpie,' whereupon this latter will probably plant it with infinite pains, and very much to his own satisfaction, somewhat in the attitude of a cassowary, only embracing a lichened stick, among a squad of variously-distorted victims of his net,—denizens of flood, forest and field,—now all peacefully grouped in incongruous fellowship under one glass case, together with half a score of showy Lepidoptera and as many green beetles. The heron, common on the pools and secluded streams of these districts, is, however, but partially known under that name to the inhabitants; though on a warm spring day, when the hedger or ploughman happens, looking up from his work, to discern on high that leggy grallator,—wending with laggard flappings to his fishy solitudes,—he will, as likely as not, lazily call the attention of his fellow to the circumstance, by the remark that "there's one of them there long-necked *cranes* o'erhead,"—a 'long-necked crane' being the formula commonly in use to express the bird called by our fathers (if we may believe Bewick and other authors) by the unparalleled name of 'heronsewgh.' The willow warbler and the chiff-chaff are here indifferently called 'bank-juggs,' from their habit of nidificating in banks, while the long-tailed tit is distinguished by the name of the 'hedge-jugg.' Near Coventry this latter is known as the 'millithrum,' evidently a corruption of 'Miller's thumb.' The whinchat has the nickname of 'utick,' or, more simply, is sometimes merely a 'tick,' from its well-known note. The starling in this dialect is a 'starenil' or 'staynil,' the jackdaw becomes a 'jack-a-daw,' and the lapwing a 'flopwing.' An indigenous Leicestershirian would be all abroad if you told him of such a bird as a missel thrush: he calls it a 'thrice-cock,' or, in his own pronunciation, a 'throice-cuk.' As to a landrail, you might as well talk to him about an Apteryx; mention a 'corn-drake' (I think they take this bird for a kind of terrestrial duck) and he'll recognize the fowl at once. The swift is with him a 'devilng,' the whitethroat a 'peggy,' which term includes also the garden warbler. The lesser whitethroat comes in for the title of the 'little peggy,' and the blackcap for that of the 'black-headed peggy,' while the reed bunting usurps the latter warbler's legitimate appellation. All the sand-pipers shot in these inland parts (and the species are but few) are indiscriminately known as 'sand-snipes,' while only two species of duck appear to be at all recognized, all and every of the few species, besides the common mallard, met with here, being (if not too big) unhesitatingly considered 'wigeon.' Even the teal is 'wigeon.' I was once plagued a long time to make out what bird on earth could be indicated by the unheard-of name of 'gorse-hatch,' or 'gorse-hatcher,' and it was only after much research that I discovered that the female and young of the wheatear were branded with that uncouth appellative, the male alone being honoured with his proper title, and considered distinct. But one more instance for the present. A stranger to these districts might have felt some rather justifiable alarm if he had heard, as I did one day, an Herculean keeper, with a beard like Sampson's (only bright yellow), gun in hand, and a "puppy" about the size of the black bear at his heels, blandly announcing to his "pal," the village bird-crucifier, the evidently gratifying

fact of his having killed that morning six 'tailors' at a shot!! And then the stout Jager hauled forth from the fustian depths of his capacious lappet a demi-dozen of *goldfinches* as the Schneiders in question! That bird is in fact here known solely as a 'proud tailor,' though for brevity's sake, in common parlance, they frequently drop the adjective, and speak of it simply as a 'teelor.' The yellow hammer is here, as elsewhere, the only goldfinch. Such are a few of the prevailing and peculiar terms in the ornithological vocabulary of one portion at least of this county. No doubt almost every rural district presents similar interesting varieties of nomenclature, which those to whom benevolent Fortune has assigned their "otium cum dignitate," in the pleasant places and peaceful seclusion of a country life, might add much to their own instruction and amusement by studying and collating, and at the same time would help to advance a good and useful cause.—*Arthur Evans; Coventry, April 25, 1848.*

Egg of the Egyptian Vulture (*Vultur percnopterus*).—An error appears to have crept in at page 4 of Mr. Yarrell's excellent 'History of British Birds.' It says that the eggs of the Egyptian vulture are *white*. I can, however, corroborate Mr. Hewitson's description of the egg from personal observation. I have examined six specimens (one of which is in my collection), taken two at a time, from the same nest, three successive years, by a friend of mine, in a locality with which I am well acquainted, in the lower Alps. The eggs are either spotted (probably from young birds), or blotched all over with reddish-brown. They are more regularly oval in shape than eggs of the Rapaces generally are; and in their markings they vary exactly in the same degree as the eggs of the kestrel, peregrine falcon, hobby and honey buzzard.—*S. C. Malan; Vicarage, Broadwindsor, April 18, 1848.*

Occurrence of the Merlin (*Falco æsalon*) in *Oxfordshire*.—Two individuals of this species were shot in the early part of this year, by Mr. Hollis, of Coggs, near Witney, Oxon. It is a rare winter visitant to this county.—*T. Goatley; Chipping Norton, April 10, 1848.*

Caprice of a Kestrel (*Falco tinnunculus*).—There's a green grassy knoll in Bosworth Park* that any naturalist would love. It slopes towards the S.W. with gentle undulations, down to a quiet glassy pool of dark water, the haunt of the coot and the heron,—and is skirted along its southern side by a wood of giant oaks, whose sombre image is inverted in the watery mirror, and whose deep seclusion is undisturbed all the summer long, save by the rustling tread of the deer as they cross half-seen its quiet vistas, and whose echoes at that season are awake only by the voice of forest birds,—the jarring cry of the woodpecker or the moaning plaint of the cushat,—or, later on, by the sleepy braying of the hinds at evening. There the peregrine falcon has been met with, and the great and lesser spotted woodpeckers may, though unfrequently be seen. Jackdaws and starlings innumerable tenant its depths and people the cavities of every bole. But my present business is not with the wood,—pleasant spot though it be,—but with the knoll I have spoken of. This is studded with five or six vast venerable oaks, and near its highest portion is graced with a magnificent clump of huge beech and horse-chestnut trees, mingled with towering larches,—for years the haunt of a pair of kestrels that had their nest at the tip-top of one of the highest. 'Tis but a little spot; yet, seen from whatever point, or at whatever time or season, this particular nook of the old park is strikingly picturesque. A calmer, more

* Co. Leicester, seat of Sir W. W. Dinie, Bart.

peaceful and lovelier scene the golden sunlight of summer eves hath never slept upon; a meeter spot for fairy revels the moon of a dewy June midnight never bathed with her silver radiance. And here, upon the slope, about a stone's throw from the clump aforesaid, and between it and the pool, surrounded at about the same distance by several of the larger of the forest monarchs that grace the acclivity, stands a huge old Spanish chesnut, of ample girth and wide-spread limbs, scarce inferior in size to the largest of those of its mighty neighbours, with whom it has grown up, flourished and decayed, through the long centuries of their silent companionship. The breeze of five hundred autumns has scattered its leaves, the lightnings have riven its largest limbs, the decay of antiquity has set its seal upon his knobbed and gnarled sides, and "ruin greenly dwells" about the vast white truncated arms that tower forth from among the belt of fair foliage which the lower boughs continue yearly to put forth. There it stands, still "holding dark communion with the cloud,"—a mighty wreck—a fallen majesty. The storms of a few more winters will pass over it, and then its place shall know it no more; no monument shall mark the spot where for ages stood the mighty tree; no epitaph shall chronicle the lustre of its leafy pride! It is pleasant on summer evenings to watch the stealthily sportive rabbits—white ones many of them—playing round the old fantastic roots that buttress up his broad old trunk, and popping in and out of their lurking-places beneath them; or to sit at early morning or broad noon in the shade of the neighbouring clump, and mark the various denizens of the old tree's boughs engaged in their nidifying avocations. We shall see there, at the proper season, the jackdaw, the starling, the barn owl, or his cousin the wood owl, the cushat,* and perhaps the mountain sparrow, all busy in providing for the "gaping wide-mouthed" families that await, in all the expectancy of their callow helplessness, each return of their parent, in some one or other of its numerous holes and crannies. The green woodpeckers, too, have bored their circular cavities in different parts of its bare sapless limbs, but they do not breed there now; and this summer (1847), strange to tell, a pair of kestrels built and hatched their young in the hollow of one of the larger decayed boughs! I know not whether the same pair that were wont to build at the top of the lofty larch hard by, but this year there was no nest in the larch tree. The clear ringing of the pretty falcon's musical spring note, from the old wood, had often made me pause to listen,—for I love the kestrel and her woodland cry; but I little suspected the whereabouts of her nest (for I knew not then that this bird was ever foraminous in its nesting), until I had twice seen her fly off from the same dead bough that I have mentioned. This induced a scrutiny, and I presently discovered the hole in which, as it afterwards proved, the nest was placed, and which was of roomy dimensions, and about a foot or so deep. Day by day after this I noted from a distance the movements of my pretty little spotted friend, who had there hatched, and who was not much in the habit of quitting her woolly chicks, unless disturbed: when she did so, her extreme caution on her return was amusing. She would fly round and round the tree, hovering at intervals with wide-spread tail, to make quite sure that no enemy was at hand, and then—with a parting survey at the entrance—pop into her domicile. None of her fellow denizens of the boughs showed any sort of fear or anxiety at the

* This species, as well as the stockdove, breeds in holes of trees. I have taken the eggs and young frequently from such situations, and its laying in holes of the tree in question is literally a fact.

close vicinity of their dwellings to that of Madame Cressuelle, nor did they ever attempt to follow or mob her on her goings or comings. She, in her turn, never molested them, but always sailed straight off in the same direction, over the wood, in her foraging expeditions. After the first day or two I never saw her mate; and by-and-bye murderous thoughts came into my head respecting the lady herself. The kestrel that had started the original idea of merely furnishing an apartment, instead of building a house, acquired a wonderful interest in my eyes. I longed to handle and to possess her. Her two pin-feathered representatives of the family would soon be in a condition to represent it elsewhere,—and then good-bye to mamma! Besides, the keepers (the pests!) would have her if I didn't: so my gun accompanied my next watching. Need I tell the sanguinary sequel? How 'twas a May evening, at sun-down, that she dashed forth from her home for the last time? and how a snap-shot through the boughs was swifter than even her swift pinions, and stretched her lifeless at my feet? My cabinet is now her tomb.—*Arthur Evans.*

Apparent Instance of Gratitude in an Indian Species of Owl.—About the middle of February, 1839, one of my servants brought me a nest of five owlets, apparently two or three days old, which had been found by men at work in the house I then occupied in the neighbourhood of Calcutta. The native, to whom I had given strict orders to bring me every bird, reptile or insect, he found, while bringing me the owlets, begged my leave to keep them. His request surprised me the more, as I was aware of the superstitious dread with which owls are looked upon by natives in India; and I asked him, what he could do with them? “I shall pound them, sir,” was his answer. “Pound them! what for?” “Why, sir, to make a plaister of them; it is good against sickness.” “You must do without the plaister; they shall not be pounded,” was my reply; and I placed them inside a wire cage in the front hall. About dusk, that same day, I heard a fluttering in the hall, and found that it proceeded from the mother owl, which had brought a large blue rat to its nestlings. I caught her, and put her inside the cage with her brood; but although I gave her mice, she refused to eat, and died the third day. I then put the five owlets in an aviary made of bamboo, which I had constructed under the shade of a large mango-tree, in front of my house. From that time the trouble of feeding those young owls was entirely taken off my hand by the male bird, which, regularly every night, brought at least a couple of mice or rats, which it first killed, and then passed between the rails of the cage to its young. This went on for at least a month; when, requiring the aviary for kingfishers (*Alcedo Smyrniensis, radis* and *Bengalensis*), I thought of restoring to liberty my five owls, by this time full-fledged and able to provide for themselves. I therefore opened the cage-door one evening, and they all flew out: but the next morning they were all come back; so that I was obliged to take them out that evening, and, having shut the door of the aviary after them, I turned them literally out of doors, and bid them roam at large. Still they would not go altogether; for no sooner was the sun down, than, flying to the mango-tree, they began to coo for food, which was thrown at the bottom of the tree for them: this took place regularly every day, until I was obliged to leave India for the Cape. Before leaving, I gave injunctions to one of my servants, left behind, to continue to feed those owls as before. And I was not a little surprised, as well as pleased, when, the day of my return home, after an absence of eight months, I heard, after sunset, the well-known note of my owls, perched as before on the old mango-tree, and craving as always their evening meal. I learned from my servant that they had never failed to resort to the same tree every evening during my absence.

The next day, at sunset, I watched them flying to their wonted roost; but I could number only three. What had become of the two others? And day after day they came, until my departure for England, two months later,—nearly ten months after I had adopted them. Does it not look like *gratitude* for my having rescued them from their untimely fate, from death by pestle and mortar?—*S. C. Malan; Broadwindsor, Dorset, April 4, 1848.*

Parental Affection in the Owl (Strix flammea).—During the last spring an old ivy-clad tree was blown down by the wind at Chesterton, Oxfordshire. Its fall dislodged a family of white or barn owls. The parent bird placed the young ones under the shelter of the tree, and continued her maternal duties, undisturbed by the frequent visits of the keeper on his rounds. One morning, however, after looking at the young birds, he was turning to go away, when the old bird flew at him, knocked his hat off, and inflicted a wound on his face, narrowly missing his eye.—*Thomas Prater; Bicester, April 18, 1848.*

Occurrence of the Tawny Owl (Strix stridula) in Ireland.—I have received a fine specimen of the tawny owl from Queen's County, and have seen a second. Mr. Yarrell observes of this bird, that it has not been recognized by practical ornithologists as existing in Ireland.—*Robert J. Montgomery; Manor House, Raheny, near Dublin, May 18, 1848.*

Long Captivity of a Specimen of the Little Owl (Strix passerina).—It may be worth recording, that the *Strix passerina* which was stated to have been captured near Derby, in an early number of the 'Zoologist' has lived in confinement ever since, till it was killed by a cat a few days ago. This is a longer period of captivity than it is said in Yarrell to be able to endure. Shortly after I obtained it, it refused its food, and I was afraid it would die; but it was suggested that it wanted water, and so it proved, for it drank greedily what was given it, and with a constant supply of water has ever since remained in good health. It has been fed with raw meat, and only occasionally a mouse or bird has been given it. Though placed in a cage, in a passage where people are constantly passing, it never got over its natural wildness; but it knew the persons who were in the habit of feeding it, and made a plaintive noise when they were present. Now and then, at night, it raised its sharp cries. Its winking, courtesying and snapping made it appear singularly grotesque, as mentioned by Mr. Yarrell. The edges of the eyelids being everted gave a remarkable appearance to its large white eyes. I do not myself know the circumstances of its capture, but it seems not improbable that it was one of those turned out by Mr. Watterton at Walton Hall, if it is of the same species, as I suppose it is.—*J. Wolley; 3, Roxburgh Terrace, Edinburgh, March, 1848.*

Egg of the Redwing (Turdus iliacus).—It is somewhat singular that there should exist any difference of opinion as regards the colour of the eggs of the redwing, which is by no means a rare bird in many parts of Europe. Temminck, who ranks among the first ornithologists, seems to rest satisfied with the testimony of the Swedish naturalist, Nilsson, and says, after him, that the eggs of the redwing are "blue spotted with black." I have not Dr. Thienemann's figure by me; but several specimens of the eggs of the redwing, in the possession of a friend of mine, who received them from Dr. Thienemann himself, entirely agree with Temminck's description of them. I have also examined a great number of eggs, said to be those of the redwing, in oological collections abroad, which correspond exactly with Nilsson's "blue spotted with black." They resemble small rounded eggs of the song thrush, so as not to be distinguished

if once mixed with them. On the other hand, Mr. Hewitson, who deservedly ranks high as an oologist, gives a very different figure of this egg: his is in appearance more like the egg of the blackbird or fieldfare: still he does not give it apparently without some slight hesitation, consequent upon his not having succeeded in finding the egg himself during his tour in Norway; but his figure is taken from specimens to be found in standard collections in this country, one of which is Mr. Yarrell's. But Mr. Yarrell, in his article on the redwing, does not describe the eggs from his own specimens; he rests satisfied with giving Nilsson's opinion that they are "blue spotted with black." Some one of your correspondents, who may have been fortunate enough to take the eggs himself, and can therefore have no doubt as to their identity, would perhaps be kind enough to remove all doubt on the subject, and in so doing render a service to more than one naturalist.—*S. C. Malan; Broadwindsor, Dorset, April 18, 1848.*

White Variety of the Blackbird (Turdus merula).—A white variety of the blackbird was shot here last year, and is now in Mr. Robert Watt's possession.—*J. B. Ellman; Battel, March, 1848.*

Nesting of the Ring Ouzel (Turdus torquatus) in Warwickshire.—The nest and egg of this bird were brought me from Pinley, close by this city (Coventry), on the 25th of last month, together with the male bird, which was shot on the spot. The female was also shot, *from the nest.* Mr. Bree informs me that he never met with the bird in this county, and it is not I believe recorded ever to have nested here. The nest was placed among the ivy growing round an elm tree, the smallest of four or five similarly ivied ones standing on the brink of a small pond, and in the midst of a highly cultivated and thickly wooded district. Its altitude from the root of the tree was about eight feet, and from the top of the bank—whence it could be readily reached—five or six feet. The nest is composed internally of dried grasses and stalks, thickly matted together, with here and there a dry oak leaf; while the interior wall, composed of mud, appears to be more solid than is usual in the blackbird's nest, and this again is thickly lined with grasses and stalks, precisely similar to those of the exterior, and one or two dried leaves of hawthorn. On the whole it resembles very closely the nest of the blackbird. Its dimensions are—

Diameter	7 inches.
Do. of interior	3 $\frac{3}{4}$ "
Depth	3 $\frac{1}{2}$ "
Do. of interior	2 "

The measurements of an ordinary blackbird's nest now before me differ slightly from these, this being an inch less in external diameter, half an inch deeper, and rather narrower in the cup. There is also usually moss about the blackbird's nest, not a particle of which is used in the ring ouzel's nest I am speaking of. The egg is of the size of that of the song thrush, of a pale greenish blue, very sparingly freckled with pale purplish and reddish markings, except at the larger end, where the mottlings run together so closely as entirely to conceal the ground colour. At a short distance, the effect is that of an uniform purplish chestnut at the larger end, gradually changing to pale blue towards the middle of the egg, of which colour only the smaller end appears to be, as indeed it is, with the exception of a few very minute specks of pale reddish, which hardly show. Six other eggs of the same bird, in my possession, obtained in the neighbouring county of Leicester, exhibit similar characters, though some are redder, some paler in the markings than this: one in particular is of a very deep and

uniform chestnut at the large end, while the rest is nearly pure blue. In different years I have had several similar ones to the last from the same neighbourhood, and these, and the others now in my possession, vary from this intense colouring, in inferior gradation, down to a near approach to the most nearly approximating variety of blackbird's egg, from which, however, a practised eye readily detects that of the bird in question. The nest, from which one specimen I possess was taken, was situate in a low yew tree growing among a quantity of laurels, in the Rookery at Bosworth Park, Leicestershire, near which place five others have been obtained this year. I need make no comment on the discrepancy between this description of undoubtedly genuine ring ouzel's eggs and the situation of the nest, and those given by Yarrell, Macgillivray, Hewitson, and other writers. The situation of the nest at Pinley might have been singular and an exception to the general rule, but the character and markings of the egg of the ring ouzel will, I think, turn out to be most usually those that I have described.—*A. Evans ; Coventry, May 19, 1848.*

Occurrence of the Redstart (Sylvia Phœnicurus) in Queen's County.—In February, 1847, I obtained, through the kindness of Mr. R. Glennon, Jun., bird-preserver, of Dublin, a male redstart in winter plumage: it had been shot two days previously in Queen's County. Mr. Yarrell says that it has been once obtained in Ireland.—*Robt. J. Montgomery ; Manor House, Raheny, near Dublin, May 18, 1848.*

Occurrence of the Reed Warbler (Sylvia arundinacea) near Dublin.—On the 21st of December I shot a male specimen of the reed warbler at this place: it is said by Yarrell to have been included in the late Mr. Templeton's 'Catalogue of the Birds of Ireland,' on the faith of a specimen once seen in the vicinity of Belfast.—*Id.*

Occurrence of the Blackcap (Sylvia atricapilla) near Dublin.—Mr. Yarrell records that the blackcap has been once taken in the north of Ireland. I have shot two at this place in my father's grounds, both of them in the depth of winter; one, a female, on the 21st of December.—*Id.*

White Variety of the Hedge Sparrow (Sylvia modularis).—A female specimen of the common hedge sparrow, perfectly white, was captured here about three weeks since. The bird was first noticed in September last, and was finally taken whilst sitting on the nest, by a poor boy out of the village. The bird is now in the possession of a relative of mine, and is in perfect health; it seems quite reconciled to confinement. The eggs on which the bird was sitting were of the same colour as those of the ordinary hedge sparrow.—*H. H. Crewe ; Drayton Lodge, near Tring, Bucks, May 1, 1848.*

Occurrence of the White Wagtail (Motacilla alba) near Penzance.—I yesterday had an opportunity of examining a male and female of this species, which were observed amongst a large number of the common species, and which attracted notice from their light blue backs. They were shot by Mr. W. H. Vingoe, of this place, who civilly submitted their bodies, after skinning them, to my inspection, and the usual tests were satisfactorily developed.—*Edward Hearle Rodd ; Penzance, April, 1848.*

Frequent Occurrence of the Continental White Wagtail near Penzance.—Since my last communication to you, relative to the occurrence of this species in this locality, I have now to inform you that during the present month a great number have been seen and several specimens obtained; in fact I may say that on the wet ground between Marazion and this place several pairs may be seen at any time. I have observed others scattered about in various directions in this immediate neighbourhood,

and I have no doubt that throughout the south coast of England they may be seen.—*Id.*, May 17, 1848.

Occurrence of the Gray-headed Wagtail (Motacilla neglecta) near Penzance.—I have seen a male and female of this species in full vernal plumage, which were also captured near Marazion. The plumage of the male bird exhibits the fine bright intense yellow plumage which its congener—the yellow wagtail—possesses at this season of the year; but the female's plumage has a grayish faded cast of colour, without the green olive tinge which the other species shows; the streak over the eye is pure white, and the breast and belly white, tinged with primrose yellow.—*Id.*

Singular Proof of the Reasoning Faculty in a Canary.—In the year 1839 I had a canary, between the wires of whose cage I was in the habit of placing a piece of lump sugar: one day it dropped out, and when picked up was found to be quite wet on one side: this excited my curiosity, so I looked to see if there was anything to wet it where it had fallen, and being convinced there was not I replaced it, but put the dry side inwards, determined to watch the bird's proceedings, when, to my surprise, after a few ineffectual attempts to nip some of the sugar (for it never pecked it) it went to the water-trough several times, filled its bill, dropped the water on the sugar, and then, after it was thus softened, began to eat it: this I have seen it do frequently. Now I think this is more than an extension of the vital actions subservient to the physical life of the individual; here must be thought, thought applied, something like deduction, a means used and the end answered. Now if so many of our philosophers and divines persist in calling this instinct, what is reason? where does matter end and mind begin? Is it not leading many into materialism? Would it not be better to allow that the lower animals have minds suited to their station, enabling them to accomplish the purpose for which the Author of their being intended them?—*Joseph Duff; Bishop's Auckland, May 8, 1848.*

Additional Note on the Chaffinch (Fringilla cœlebs).—I have reconsidered the subject of the chaffinch (Zool. 2072), and as I had quoted from memory only, I instantly referred to White's 'Natural History of Selborne,' to the paragraph which is in Mr. Blyth's note to the above, page 36, and am sorry to find a discrepancy between the quotation given by you and that given by Mr. Blyth: the quotation referred to is as follows, that "in Northumberland and Scotland this separating takes place about the month of November, and that from that period to the return of spring few females are to be seen, and these few in distinct societies; this, however, requires a little qualifying, as there are many of both sexes that remain throughout the winter, and do not flock even in the warmer parts of Scotland: in ordinary winters, in the south of England, a very large proportion of them certainly do not congregate, and of those that do the sexes are not invariably apart, but associate together along with yellow buntings, green grossbeaks, and sometimes mountain spinks or bramble finches." The following part of this note I apprehend to be Mr. Blyth's own observation. I am sorry that I have not Mr. Selby's work; but I doubt not the accuracy of your quotation,—“the males remain and are met with in immense flocks.” Now this is at variance (I think) with the observations of naturalists generally; but the explanation I offered was not suitable for this quotation, neither was it intended for it, but for flocks of supposed hens that were seen in the south.—*Id.*, April 27, 1848.

Note on the Mealy Redpole (Fringilla canescens), &c.—Your correspondents, in remarking (Zool. 2018, 2064) on the flocks of mealy redpoles which occurred last winter,

have not noticed what seemed to me to be rather a curious circumstance connected with them, namely, the small number of female birds among them. Out of about a dozen examples that I met with, either dead or alive, and at various times during the season, I believe only three were hens. I cannot, however, tell at all what was the proportion between the sexes when in the flocks, as at that season they differ but little from each other. In habits they seem to resemble the lesser redpole, but are in general, I think, wilder. In conclusion I have to remark that both mountain finches and siskins abounded during the past winter. About the second week in January we were visited by large *trips* of golden plovers: these stayed but a few days, and after that our ordinary few only were seen. The number of wild geese over was very small, and bore no proportion to that of the year before; but the quantities of fieldfares and redwings were much the same.—*Alfred Newton; Elveden, May 1, 1848.*

Singular Situation of the Nest of a Starling (*Sturnus vulgaris*).—A starling has this year built its nest in a hole on the fifth story of a large flax mill, in this town (Belfast). The nest contained five eggs when first examined, and they have been since hatched in safety. The parent birds seem to be neither disturbed by the noise of the machinery, nor do they regard the number of people in the locality, for I learn that they chose nearly the same spot for building in last year.—*Robert Taylor; Clifton Ville, Belfast, May 16, 1848.*

Note on the Building of the Rook (*Corvus frugilegus*).—It has long been a popular belief that the rook regularly lays the "*first stick*" of its nest on the 1st day of March, but I find that the bird is not generally so very punctual in this respect as people suppose it to be. For a number of years past I have observed that it is generally a day or two *after* the first of the month before the rooks begin in this quarter to build, although indeed I believe they have on some rare occasions been observed at work in the latter end of February. Never, however, have I been so much struck with their delay as during the present season. I have this year had ample opportunities of observation, as I regularly pass two rookeries three or four—sometimes five or six—times every day, on my way betwixt my home and the town; and I therefore resolved to avail myself of the advantages thus afforded. Accordingly, when February was drawing to a close, I kept a good look-out after the operations of my black neighbours; but it was the 5th of March before any stir was observable amongst them, and of that date the following note appears in my 'Journal of Observations':—"Observed the crows in Perthroad, &c., to be very noisy and busy, seemingly preparing to build." But even after that time, day after day was I disappointed in seeing no earnest of their having begun to build, until at last, on the morning of the 13th, I saw several of them stalking about on the grass at White-leys, with twigs in their bills. About a week afterwards several of the nests were visible on the trees, but even at the present time some of them seem scarcely completed. On the 2nd of April current I saw several rooks carrying twigs as I passed. They seem to work most in the mornings. It would be interesting to know whether the rooks have been generally so late in building this season. From the state of advancement in which I saw the nests at Baldovan, and likewise those at Gray, about the middle of the month of March, I am inclined to suspect that they were begun earlier at both of those places than here, but I have no means of obtaining decided information. The intelligent gardener at Gray, Mr. W. Chalmers, told me that the rooks had been *later* this season, but he had taken no note of dates. I may add that, since beginning to build, our Dundee rooks have become very bold, and alight with impunity in streets where there is considerable traffic, for

the purpose of picking up materials for their nests, as well as such stray seeds of corn as may chance to come in their way.—*George Lawson* ; 212, *Perth Road, Dundee*, April 8, 1848.

Anecdote of a Rook.—In the beginning of the breeding-season of the present year, a rook unfortunately got entangled in the thick branches of a large tree, adjacent to Castle Warren, the seat of Robert Warren, Esq., county of Cork. The other rooks, seeing its hapless condition, attacked it, and soon put an end to its existence, notwithstanding the vigorous but ineffectual efforts of its mate to defend it. Since that time the dead body is daily visited by a rook, which also roosts by it every night: this rook is supposed to be the mate; if so, it is indeed “fidelity in death.”—*Robert Taylor* ; *Clifton Ville, Belfast*, May 16, 1848.

Anecdote of a Magpie (*Corvus pica*).—A magpie in the possession of Mr. C. Beesley, of Summertown, near Oxford, having, from the time it was taken, been allowed to go freely about the premises, was lately—on account of its mischievous propensities in the garden—placed in a spacious cage. Although very talkative before, it became totally silent, and, on a greenfinch being introduced into the cage, instantly seized it and tore it limb from limb.—*Thomas Prater* ; *Bicester*, April 18, 1848.

The Cuckoo (*Cuculus canorus*) *singing by Night*.—On the 2nd of June, last year, in a wooded district about three miles from Ryde, at 11 o'clock, p. m., I was surprised to hear the cuckoo repeating his well-known note with even more than the usual frequency, and as I continued riding on I found it was continued without intermission. From this period, during the space of an hour, I frequently returned to the open air, and he still continued his note; and persons residing on the spot informed me afterwards that he was still continuing his note when they ceased observing him, at 2 a. m. The moon, four nights past the full, had not risen when I first noticed the fact, but the air was still and warm and the twilight bright, and the light was soon increased by the moon's rising. These circumstances, accompanied as they were by the call of the heron—whose return just then was determined by the rising tide—and the lowing of a calf, made the scene anything but like one of night. During the last week I have been reminded of the fact by hearing the cuckoo, during several evenings, give occasional calls as late as nine or ten o'clock, and one night as late as eleven. The nights, however, on these recent occasions were more decidedly moonlight.—*T. Bell Salter* ; *Ryde*, May 16, 1848.

Further Note on the Bustard shot in Lincolnshire.—Since the publication of the note (*Zool.* 2065), a diligent inquiry has been instituted into the right of this bird to be admitted into our list as a voluntary visitor of this kingdom: the result shows that not one of Mr. Fraser's birds has escaped; and, therefore, that that mode of accounting for its occurrence is fallacious: no evidence exists against the supposition that its passage hither was voluntary. I have just received a note from its owner, Mr. Higgins, who states, that on examination by Mr. Gould, the bird turns out to be *Otus Macqueenii*, a native of Persia and Western India. A doubt exists whether these two closely allied birds are really distinct; but the subject is now under the notice of competent ornithologists, and will be again resumed in these pages.—*E. Newman*.

Note on the Great Plover (*Edicnemus crepitans*).—Mr. Rodd mentions (*Zool.* 2023) the great plover as occurring in the Land's End district of Cornwall only in the winter months. More to the eastward, in the county of Dorset, I have many times endeavoured unsuccessfully to shoot this bird during the summer months; and I never remember seeing it in the winter. It breeds every year, though I was never fortu-

nate enough to obtain the eggs, on several of the hills round Charmouth; that on which I made its acquaintance was to the west of Charmouth, behind Langmoor. There it frequented chiefly a large rough field, much covered with stones; it always kept near the middle of this field, and so sure as any one entered the field at any point, so sure did it take wing almost immediately. I never succeeded in seeing it on the ground. Five or six years ago one was shot by a farmer on another hill about a mile from this one. It dropped, and he picked it up and handled it, apparently dead: he then threw it on the ground, and proceeded to reload his gun, but before he had accomplished this, my friend was off, seemingly as well as ever, and he saw him no more.—*Beverley R. Morris; York, March 8th, 1848.*

Note on the Great Plover (Oedicnemus crepitans). This species, until within these few years, used to frequent the high situations and lighter soils of this part of the country, coming in spring to breed, when their loud calls might be heard a long distance on the approach of night, and leaving in the autumn; but now it is a rare bird—scarcely one being seen, or known to stay, in the localities formerly occupied by them; owing, most likely, to the extension of agriculture, and the improvement of the land.—*T. Goatley; Chipping Norton, April 10th, 1848.*

Migration of the Golden Plover (Charadrius pluvialis).—These birds come in considerable flocks, in November or December, and spend some time during the winter months upon the higher grounds in the neighbourhood, particularly the fields of Chadlington and Dean, between this town and Charlbury, and leave again early in spring.—*Id.*

Occurrence of the Night Heron (Nycticorax Gardeni) in the county Louth.—On the 1st of May I received a fine male specimen of the night heron, in nearly mature plumage, but without the crest of white feathers: it was shot on the reedy border of a small lake, at Beaulieu, the seat of the Rev. A. J. Montgomery, in the county Louth: in Yarrell's 'British Birds,' it is stated to have been killed twice in Ireland; no particulars are given as to where or when.—*Robert J. Montgomery; Manor House, Raheny, near Dublin, May 18th, 1848.*

Occurrence of the Little Bittern (Ardea minuta) at Ewhurst and Ledlescomb, Sussex.—I have seen a male and female of *Ardea minuta* which were shot at the above places. The female about three months ago; the male, at the latter place, I believe, about fifteen months since.—*J. B. Ellman; Battel, April 20th, 1848.*

Occurrence of the White Stork (Ciconia alba) at the Land's End.—On Saturday last the servant of James Trembath, Esq., of Mayon, killed an adult specimen of this bird, which has been set up by Mr. Vingoe, of this place, at whose house I examined it this morning. It is a fine, well grown bird, and the plumage appears to be uninjured. I am not aware of the occurrence of this species before in the county, although I have an example in my collection of its rarer congener the black stork, killed in 1831 on the river Tamar.—*Edward Hearle Rodd; Penzance, May 17th, 1848.*

Occurrence of the Spotted Sandpiper (Totanus macularius) in Yorkshire.—On the 2nd of last March I saw a specimen of the spotted sandpiper on the beach at Bridlington Quay. It was excessively tame, and allowed me to approach within about fifteen yards of it. I am not aware of its having been noticed in Yorkshire before.—*Edmund Thomas Higgins; Spurrier Gate, York, May 17th, 1848.*

Egg of the Greenshank (Totanus Glottis).—I have examined the drawing of the egg of the greenshank which Mr. Milner was so good as to send you; and have much

pleasure in reporting that it strongly resembles three eggs in the collection of Mr. J. Smith, of this place, which have been long believed by him and me to be the eggs of this bird. These eggs were taken some years since in the Norfolk marshes. The ferruginous spots are less bright in them than in the egg of Mr. Milner as represented in the drawing, and the ground colour is almost precisely similar. Mr. Smith's eggs are, however, somewhat different in form from Mr. Milner's; being much less elongated. I was at first inclined to believe that the very elongated form of Mr. Milner's egg might be the consequence of its removal from the bird before it was perfectly formed; it has, however, been suggested to me that this is the shape of the egg of a very nearly allied species,—the black-tailed godwit. It seems hardly probable that the eggs should vary so much in form; but I am not aware of any other species to which Mr. Smith's eggs can be referred.—*William R. Fisher; Great Yarmouth, April 14th, 1848.*

Nest of the Woodcock (Scolopax rusticola).—“A few days ago a woodcock's nest, with four eggs in, was discovered in Waterperry Wood, near Oxford, belonging to J. W. Henly, Esq., M.P., by a gentleman residing at Wheatley; the nest was built in a bank, and composed chiefly of dry moss. The old bird was sitting on the eggs when the nest was found.” Two other instances of the woodcock's nesting in Oxfordshire have come to my knowledge; one occurred at Ditchley, and the other on the Ensham Hall estate: in both of which cases the young birds were shown to me.—*T. Goatley; Chipping Norton, April 10th, 1848.*

Woodcock's (Scolopax rusticola) breeding in Norfolk.—About the middle of last month (April) a woodcock's nest, with four eggs, was found at Riddlesworth, near Harling, by a man cutting reeds. The old bird being put off, did not return, and the eggs, after having been left a few days on trial, were taken. They are much darker in colour than the one figured in ‘Hewitson's Illustrations,’ and consequently approach more nearly those of the common snipe. I was told that on blowing them they seemed to have been set upon about a week. I half think that something more was done than merely “*flushing*” the bird, as this account of the woodcock's forsaking her nest does not at all agree with the common story of this bird's attachment to her eggs.—*Alfred Newton; Elveden, May 1st, 1848.*

Occurrence of the Little Crake (Crex pusilla) at Seaford.—A specimen of this very rare bird was picked up in an exhausted state at the above place a few days ago.—*James B. Ellman; Battel, March 11th, 1848.*

Occurrence of the Hooper or Wild Swan (Cygnus ferus) on the Tay.—It may be interesting to the readers of the ‘Zoologist’ to know that a flock of wild swans was observed over the river Tay, opposite to Dundee, during the past winter. I did not myself have the pleasure of seeing the flock; but have my information from a source on which every reliance can be placed.—*George Lawson; 212, Perthroad, Dundee, April 8th, 1848.*

Occurrence of the Great Crested Grebe (Podiceps cristatus) at Battel.—A fine specimen of this bird was shot at the Powder Mills last week. It is in the possession of Mr. Laurence. Two other specimens have been shot in this immediate neighbourhood, and are in the possession of Mr. James Watt.—*J. B. Ellman; Battel, March 16th, 1848.*

Egg of the Ringed Guillemot (Uria lacrymans).—May I be permitted to make a short remark upon a passage in Mr. Milner's amusing account of the birds of the Outer Hebrides (Zool. 2054). In mentioning the capture of an egg of the ringed

guillemot (*Uria lachrymans*) of a bright green colour, "covered with irregular lines of brownish black," he remarks that it proves "the absurdity of the idea that the ringed guillemot lays a white egg." I shall be excused for observing that this is what lawyers call a *non sequitur*; the only fact established is that this species sometimes lays variegated eggs! It is said, upon good authority, that it also lays eggs of a white colour, and it is so nearly allied to *Uria troile*, that there is no difficulty in believing that its eggs vary as much as those of the latter species.—*William R. Fisher; Great Yarmouth, April 14th, 1848.*

Occurrence of the Common Cormorant (Phalacrocorax carbo) in the Thames.—On Sunday last an immature specimen of the common cormorant was shot in the river Thames, at Swanscombe, by a bargeman, after being chased by several people for the space of an hour, during which time he kept diving.—*Henry Fuller; Swanscombe, May 2nd, 1848.*

Habits of Sea Gulls (Larus——?).—The flight of the sea gulls to the moors, west of my residence, has for some days past been curious. During the lambing season they regularly attend the moors to feed upon that which falls from the ewes after lambing, and return to the sea-side after the season is over. In this county there are some one or two places where the gulls congregate in many thousands to breed upon the ground at Palinsburn and Paurton. It is very remarkable that they all arrive nearly on the same day, and remain until their young are old and strong enough to swim back to the sea-side, and take their departure nearly all together. The period of their coming and going is regular to a day or two. The proprietors of the land are careful to keep off trespassers during the breeding time, for although the birds occupy some acres, it would be impossible to walk without destroying many nests.—*Isaac Cookson; Meldon Park, April 24, 1848.*

Occurrence of Buffon's Skua (Lestris parasiticus) near Thetford.—An immature specimen of the Buffon's skua was found dead at Hockham, in September last. I saw the bird when stuffed, but unfortunately I am unable to give you any further particulars about it.—*Alfred Newton; Elveden, May 1, 1848.*

Dates of Arrival of Migratory Birds near Elveden.

Fieldfare, September 27	Redwing, October 14
Dotterel, September 29	Mountain Finch, November 19
Hooded Crow, October 5	Mealy Redpole, December 5
Woodcock, October 6	Wild (Bean?) Goose, December 5
Golden Plover, October 12.— <i>Id.</i>	

Description of a Species of Newt.—A kind of newt occurs in ponds and ditches about Edinburgh which I have not observed elsewhere. The males are remarkable for a ridge on each side of their back, which gives it great breadth and squareness, for their wholly-webbed feet, and for the mode in which their tail terminates: it appears as if the tip had been nipped off, the central filament of it only remaining, and projecting for a quarter of an inch. In colour and style of marking it differs considerably from *Lissotriton punctatus* of Bell. The females are less easy to recognise. There appear to be characteristic differences in the bones of the two species, at least in

the vertebræ and the skull, also in the general proportions of the head, body, and tail. The males do not vary much from one another: I have examined upwards of one hundred of them, but as yet only in their spring appearance. The webs of the feet, the caudal filament, the crests, and the dorsal ridges are probably absorbed later in the year, as I judge from the degrees of development I have already seen, and especially from a newt of this kind I found in the bed of a pool which had been dried up some days before. It occurs in company with *L. punctatus*, but in one ditch I found it alone and in plenty, from which I have been able satisfactorily to ascertain the females. A more full account will I hope before long be furnished by Mr. Bell, who had specimens of the same, or a similar newt, sent to him from Devonshire several years ago. It seems to occur generally round Edinburgh, as far as my walks extend. Yesterday (May 1st) I saw this, and no other species, during a ramble in the Pentland Hills.—*J. Wolley*; 3, *Roxburgh Terrace, Edinburgh, May 3, 1848.*

[I trust Mr. Bell will furnish the 'Zoologist' with a name as well as description, bearing in mind the admirable dictum "*Nomina si nescis, perit et cognitio rerum.*"—*Edward Newman*].

Remarkable Instance of Voracity in a Trout.—I send you a singular instance of the voracity of the trout, which you may think worth inserting in the next number of the 'Zoologist.' A friend of mine, while fishing in a brook at Yoxall, in this county, on the 18th of this month, caught with a spinning minnow a trout of about one pound weight, in the throat of which he found a toad, that had been swallowed head first, that part being already digested, while the legs still remained within its mouth. Trout, in our brooks, vary much in the time of their coming into season: those in the brook above-mentioned were in season when he caught the above, but in the brook which runs past this place they are seldom in season until the middle of May. Can this proceed from any difference in the temperature of the water, which in the latter is remarkable for its coldness?—*Oswald Mosley*; *Rolleston Hall, Staffordshire, April 26, 1848.*

Occurrence of Amphipeplia glutinosa near Norwich.—"Locally and periodically abundant."—(Gray's Manual). I have lately taken off the Siums and other aquatic plants in the river near this city, many dozen specimens, some of them exceedingly fine ones, of this beautiful and interesting mollusk.—*W. K. Bridgman*; 69, *St. Giles Street, Norwich.*

Occurrence of Vanessa Antiopa at Penge, Surrey.—On Sunday, April 2nd, I saw a fine *Vanessa Antiopa* settle in the middle of the road at Penge, about a mile from Sydenham. Unfortunately I had no net with me and could not capture it. I had only the pleasure of seeing it fly away and return to the same spot within a few feet of

me. Finally it disappeared among the trees at the road-side.—*J. W. Douglas; Peckham, April 6, 1848.*

Cerura vinula killed with Chloroform.—A puss-moth, which I had possessed as a caterpillar last summer, emerged from the chrysalis yesterday. I at once placed him in a large stoppered bottle, dropped a few drops of chloroform on the stopper and closed it. The insect instantly became affected, and death ensued in a few seconds. The greater convenience of a fluid when compared with the inconvenience of using laurel leaves on the one hand, and on the other the safety of using chloroform as compared with the risk attending prussic acid, would, I should suppose, make the plan now proposed the one most available for general use. A small portion of sponge glued or gummed to the bottom of the bottle to receive occasionally a few fresh drops of chloroform would make the apparatus complete; or a little piece of blotting-paper dipped in chloroform and dropped into the bottle answers as well. A little chloroform also dropped into the collecting box or cabinet, receiving fresh specimens, would have the double advantage of preventing revivals and driving away all depredators.—*T. Bell Salter; Ryde, May 16, 1848.*

Capture of Achatia spreta on Willow Blossoms.—I take the liberty of sending the notice of a capture made upon the 1st of April last upon willow blossoms, which seems to me rather unusual, viz., a very fine specimen of *Achatia spreta*. This moth has hitherto been known, I think, as a summer species. Also upon the same night *Pterophorus galactodactylus*. I should not trouble you with these remarks, did I not think that some of your readers might profit by the news, and keep a “sharp look out” in those neighbourhoods where the willow blossoms late.—*W. E. Hambrough; Nulton, Suffolk, April 6, 1848.*

Capture of Glæa rubricosa on Sallow Blossoms.—During the early part of April I took, in tolerable abundance, *Glæa rubricosa*, whilst regaling itself on the catkins of our early sallow (*S. caprea*). Westwood says it is a rare species, and figured the larva on *Rumex acutus*. This plant, however, does not grow here. It must, therefore, be a less exclusive feeder than is generally supposed. I shall be glad if any gentleman who has given attention to the breeding of the caterpillar of *rubricosa*, would kindly state whether he has found it to feed on any other plant besides *R. acutus*. *R. obtusifolius* is unusually abundant with us, as is *R. acetosa*.—*Peter Incha-bald; Storthes Hall, April, 1848.*

Further Remarks on Apterous Female Geometræ.—Since I sent you my remarks on the females of our British *Geometræ*, I have had an opportunity afforded of describing from a living specimen the characteristic markings of the female of *Hibernia leucophæaria*. The insect before me was found on the bole of a birch on the 25th of March. Like its mate, it is the smallest of the *Hibernias* except *rupicaparia*. The scales on the thorax and upper part of the abdomen are variously tinted with gray, black, and ochre; while those of the under side are of a pale dun colour, with the admixture of a few black and white scales, particularly visible on the legs. It is nearly, though not entirely, apterous, the rudimentary wings being distinctly visible with a good magnifier.—*Id.*

A Monograph on the British Argyromiges. By H. T. STANTON, Esq.

(Concluded from page 2097).

Sp. 21. TENELLA, Zeller (fig. 21).

Lithocolletis tenella, Zeller, Linn. Entom. i. 236, f. 30.

Argyromiges hortella, Bent. Mus.

Expansion of the wings $3\frac{1}{2}$ lines. Head white. Forehead white. Palpi white. Antennæ white. Thorax white. Abdomen fuscous, with the extremity fulvous. Legs white. Tarsi white, spotted with pale fuscous. Anterior wings white, with two fuscous streaks arising near the middle of the wing, one on each margin, which meet (or very nearly so) at an acute angle; beyond there is another pair of streaks, meeting at an obtuse angle,—that on the inner margin is less oblique than in *Cramerella*; a small white marginal triangle follows these streaks, the remainder of the wing being fulvous, with the exception of two white comma-shaped marks on the costa, margined internally with fuscous; and towards the inner margin is a faint dark streak, in continuation, as it were, of the dark margin of the first costal spot: at the apex is an oval black spot, round which, on the cilia, is a series of black dots, as in *Cramerella*: cilia white, with three dark patches on the costa, one on each side of the pale spots; the last is rather curved downwards. Posterior wings pale gray; cilia whitish. Some specimens have a fuscous streak from the base of the anterior wings to beyond the middle (as that figured).

I took one in Torwood, Stirlingshire, June 11th last, beating it in a thicket, in which were birch, oak and hazel underwood, and some fir trees. Mr. Weir has also taken this insect in May, near Keymer, Sussex, beating it out of a hedge, in which grew oak, bramble, whitethorn, &c.

Zeller says of it, "This scarce species flies near Reichstadt and Vienna, on oaks, in May and June."

It may be distinguished from *Cramerella* by the four fuscous streaks on the costa, instead of three, and by the less oblique direction of the second inner marginal streak, and the faint indications of a third inner marginal streak. I do not mention the basal streak here, as Zeller has made another species with a basal streak, that being its greatest character to distinguish it from *tenella*: this species he calls *Heegeriella*: like *tenella*, it has four costal streaks. Whether *tenella* varies, and this be only a variety, I do not feel positive. My own specimen, which is the one figured and described, approximates to Zeller's *Heegeriella*. Mr. Weir's specimens, without a basal streak, and with the apical spot more prolonged (more of a line than a spot), appear to approximate to the *tenella* of Zeller; but I certainly should not feel justified in making two species of them without seeing a longer series of each. Mr. Allis has also a specimen which resembles my own: the specimen in Mr. Bentley's collection resembles Mr. Weir's specimens.

Note.—Of *Heegeriella*, Zeller had only two males when he described it in the *Linnæa*: surely where the species are so very closely allied, that is hardly enough to form a species on.

Sp. 22. ROBORELLA, Zeller (fig. 22).

Lithocolletis roboris, Zeller, Isis, 1839. Linn. Entom. i. 174, fig. 4.

Elachista roborifoliella, Duponchel, Sup. iv. 342, Pl. 78, f. 11.

Expansion of the wings $3\frac{1}{2}$ lines. Head snow white. Forehead snow white. Palpi snow white. Antennæ white, annulated with fuscous. Thorax white, with two golden bands, one on each side of the middle. Abdomen fuscous. Legs and tarsi silvery white. Anterior wings silvery white; at the base is a golden oblique fascia, commencing on the costa, where it is broadest, and terminating in a point about the middle of the inner margin; on the costa near the apex are three short golden streaks, the first pointing outwards, the other two inwards; on the inner margin is a golden streak, meeting the first costal streak, and forming with it a right angle: at the apex is a somewhat triangular black spot; the space between this spot and the anal angle is suffused with golden: cilia silvery white, but with two dark patches opposite the last two costal streaks, and with a strong black line opposite the black spot. Posterior wings pale fuscous; cilia long silvery white.

I have only seen one British specimen, which was taken by Mr. Bedell (he believes off an oak) on Leatherhead Common, September 28th, 1845.

Zeller says of it, "It occurs at Berlin, near Frankfort-on-the-Oder; and Glogau, in young oak woods, sometimes plentiful, in two broods, of which that from the middle of April and in May produces the finest specimens. The second brood appears at the end of June and in July, sometimes also still later. Tischer found the species at Dresden; Mann near Reichstadt, in Bohemia, very scarce; oftener near Vienna, and certainly here on oaks and maples. The caterpillars, which I have not yet observed very closely, live in the under leaves of the oak (*Quercus pedunculata*). The part of the leaf frequented by it is shown by the dappled upper side, because the caterpillar consumes the leaf the least in the middle, only marking the leaf here and there. On chrysalizing it makes itself a fine silky cocoon in its habitation. The little black pupa, on the creeping forth of the moth, presses through the under half of the epidermis. Sometimes several caterpillars live in the same leaf, each in a separate rib. Of two living together in one leaf, one moth came out on the evening of the 30th of June, the other on the morning of the 1st of July. Of the autumnal brood, there appeared in my room specimens in January, along with *Tischeria complanella*.* That the maple (*Acer campestre*) also serves as food to *L. roboris*, appears to follow from Mann's communication."

Sp. 23. HORTELLA, Fabricius (fig. 23).

Tinea hortella, Fabricius, Ent. Syst. iii. ii. 327. Haworth, Lepid. Brit. 579, 65.

Elachista Saportella, Duponchel, xi. 539, Pl. 308, f. 10.

Lithocolletis Kuhlweinella, Zeller, Isis, 1839.

Lithocolletis Saportella, Zeller, Linn. Ent. i. 177, f. 6.

Expansion of the wings $3\frac{1}{4}$ lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous, with the

* *Apheloseia rufipennella*, Haworth.

extremity paler. Legs white. Tarsi white, spotted with fuscous. Anterior wings white; near the base is a pale golden fascia, nearly straight; in the middle is a second pale gold fascia, angulated and generally interrupted; the extremity of the costal half of it is sometimes continued towards the apex of the wing till it meets the next fascia; the third fascia is more angulated than the second, and most frequently interrupted; all the fasciæ are margined on both sides with brown; the extremity of the costal half of the third fascia is continued to the apex of the wing, and in it, close to the apex, is a darker patch; between this and the costa are two short, pale golden streaks, edged externally with brown: cilia whitish, with a black arch round the apex of the wing, and some black marks at the extreme apex, somewhat resembling a hook. Posterior wings whitish gray, with paler cilia.

This very much resembles the following; but the colour of the fasciæ is much more delicate, and the first fascia, which is only margined in *sylvella*, is filled up in this insect: perhaps the easiest character by which to recognize this species at once is the anal angle of the anterior wings being pure white, whereas in *sylvella* the first costal spot is continued across the wing, forming, as it were, a fourth fascia.

Apparently a scarce species in this country. Mr. Ingall has two, one of them being Haworth's original specimen; Mr. Bedell has two and Mr. Douglas one. Nothing is known of their locality.

Zeller says of it, "At Berlin and Glogau, very scarce, in May, in company with *roboris*, *quercifoliella*, *Cramerella*, &c. At Vienna it is more plentiful, and Mann took it in April and May: according to his observation the caterpillar mines in oak leaves. Duponchel found the insect near Paris, on elms, at the end of June, consequently the second brood."

Fabricius says of this insect, "With three yellow fasciæ, the third interrupted. *Habitat, Paris.*" Zeller complains of the brevity of the Fabrician description, and says that there is the probability of some species still more closely allied occurring with Fabricius. If it *did* occur, it has ceased to occur: moreover this insect is found near *Paris*, according to Duponchel, the very locality assigned by Fabricius. That Haworth intended this species is proved, independently of his original specimen, by his saying, at the end of his description of *sylvella*, "perhaps a variety of the preceding." This appears to have escaped the notice of Mr. Stephens, who had specimens of *Cramerella* in his cabinet as *hortella*, which is perhaps also the cause of the imperfect description in the 'Illustrations,' which has excited Zeller's indignation—"What indeed does Stephens merit for this, that he at the present day should serve up such a description!"

Sp. 24. *SYLVELLA*, *Haworth* (fig. 24).

Tinea sylvella, Haworth, *Lepid. Brit.* 579, 66.

Argyromiges sylvella, Stephens, *Illust.* iv. 258.

Elachista acernella, Duponchel, *Sup.* iv. 316, Pl. 76, f. 11.

Lithocolletis acernella, Zeller, *Linn. Entom.* i. 239, f. 33.

Lithocolletis acerifoliella, Zeller, *Linn. Entom.* i. 239, f. 32.

Expansion of the wings $3\frac{1}{4}$ — $3\frac{3}{4}$ lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous, with the extremity paler. Legs white. Tarsi white, spotted with black. Anterior

wings white; near the base are three or four black dots placed transversely, and a little beyond is a black transverse line, interrupted in the middle; these form, as it were the margins of an extinct fascia: a little before the middle is an angulated pale tawny fascia, sometimes interrupted, but oftener entire; beyond this is another more angulated pale tawny fascia; both these are margined on both sides with black; beyond the third, and connected with it, forming by their union the letter K, is a straight tawny fascia, faintly margined with a darker colour; from the middle of this to the apex of the wing is a black line, between which and the costa are two small patches of pale tawny, and on the inner margin the whole remaining space is pale tawny: cilia pale. Posterior wings clear gray, with paler cilia.

A maple feeder, and probably common wherever that plant grows. I took it in great plenty, last May and June, off hedges close to my house, and again sparingly in August. It has been taken by others in the Green Man Lane.

Zeller mentions two varieties, viz.—

Var. *b*. “The second fascia with a projection towards the first.”

Var. *c*. “With the fasciæ connected by a yellowish longitudinal line.” This last is his acernella.

Zeller says of its localities, “This species was found in Bohemia, near Nixdorf, by Fischer-v-R., and near Reichstadt by Mann; at the latter place it was very scarce in May. Latterly Mann took it at the same time also near Vienna. I took it myself near Glogau, July 8th, 1835, among a cluster of maple bushes,—above a dozen specimens of this species, varieties *a* and *b*, in company with Tort. Forskaleana. Mann informed me that it occurs in Hanover, in September. Fischer-v-R. discovered the caterpillar, from which he often bred the perfect insect; it lives as a miner, in May and June, in a maple leaf, of which, according to Mann, it turns in a corner. He found it in May and June, and bred the perfect insect in June and July.”

Sp. 25. COMPARELLA, *Fischer-v-R.* (fig. 25).

Lithocolletis comparella, Fischer von Röslerstamm, MSS. Zeller, Linn. Entom. i. 257, fig. 42.

Elachista comparella, Duponchel, Sup. iv. 318, Pl. 76, f. 13.

Expansion of the wings $3\frac{1}{2}$ lines. Head white, with some fulvous hairs. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white, with a few grayish atoms. Abdomen fuscous, with the extremity paler. Legs whitish. Tarsi white, spotted with brown. Anterior wings white, irrorated with fuscous, with four costal spots and three inner marginal spots, all fuscous: the first costal spot arises before the middle of the wing, and is continued in a slanting direction half across the wing; the second costal spot is placed a little beyond the middle of the wing, and is continued more than half across the wing, its extremity being angulated (resembling an angulated fascia with the lower part cut away); the third costal spot resembles half an angulated fascia, and is margined externally with black; the fourth costal spot is very small, and lies just above the inner extremity of the apical black streak: the first inner marginal spot is very near the base, and is very short; the second is nearly opposite the first costal spot, which it sometimes meets, thus form-

ing an angulated fascia ; the third meets (or very nearly so) the third costal spot ; its outer margin is rather dark : cilia grayish white. Posterior wings clear gray, with paler cilia.

I had two specimens of this insect mixed with *sylvella* : they are I know my own captures, but I know nothing positive as to when and where I took them ; *probably* at Lewisham, on the trunks of poplars, at the end of April. Mr. Thomson has also a specimen, which he had placed with *Boyerella*.

Zeller says, "Near Vienna, on poplars, in April, July, August and September ; on the Prado, in the crevices in the bark of poplars."

Sp. 26. *CORYLIFOLIELLA*, *Hubner* (fig. 31).

Tinea corylifoliella, *Hubner*, *Ti.* 194. *Haworth*, *Lepid. Brit.* 580, 68.

Argyromiges corylifoliella, *Stephens*, *Illust.* iv. 258. *Wood's* fig. 1321.

Lithocolletis betulæ, *Zeller*, *Isis*, 1839. *Linn. Entom.* i. 222, f. 24.

Expansion of the wings $4\frac{1}{2}$ lines. Head tawny. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax rufous tawny. Abdomen fuscous, with the extremity fulvous. Legs fuscous. Tarsi whitish, annulated with dark fuscous. Anterior wings rufous tawny, with a very slender pale basal streak, which, rather beyond the middle of its length, is slightly angulated towards the costa ; about the middle of the wing are two pale thin streaks, one on each margin, which very nearly meet ; they are both edged with fuscous internally, and the costal one externally, and very broad ; a little beyond the inner marginal streak is a narrow fuscous band, meeting the fuscous outer margin of the costal streak, and beyond this is a faint spot on the inner margin ; towards the apex is an obscure black streak, and above this on the costa is a pale spot, with a black dot on its inner edge : cilia pale tawny, with a black arch round the apex of the wing and to the anal angle. Posterior wings clear gray, with paler cilia.

Not a scarce species. I found it in plenty May 24th last, beating it out of the hedge near the Godstone Road station. This hedge is principally hawthorn, but contains a mixture of bramble, hazel and oak.

Zeller says of it, "I took this scarce species in several places near Glogau, but rarely, in birch woods, in company with *ulmifoliella*, where I beat them out of the young leaves of the bushes and low plants, particularly towards evening : the period of flight is May. Mann took it also near Vienna in May, but on willows and *Prunus padus*."

Hubner's figure is quite distinct enough, I think, to identify this species ; but Zeller does not even give Hubner as a doubtful synonyme, though he says afterwards, in a note, that he has done very wrong not to give Hubner as a synonyme with a note of interrogation. It appears, from another remark of Zeller's, that Guenée has sent this species to Fischer-v-R. as the *Demaryella* of Duponchel, which, however, Zeller is inclined to doubt, in which doubt I quite coincide with him, considering the next species (which is not figured, by Zeller) to be the true *Demaryella* of Duponchel.

Sp. 27. DEMARYELLA, *Duponchel* (fig. 32).

Elachista Demaryella, Duponchel, xi. 547, Pl. 309, f. 5.

Expansion of the wings 4—4½ lines. Head grayish brown. Forehead whitish. Palpi whitish. Antennæ white, annulated with fuscous. Thorax grayish tawny. Abdomen fuscous, with the extremity paler. Legs whitish. Tarsi whitish, annulated with fuscous. Anterior wings grayish tawny, with two pale angulated fasciæ; one about the middle, the other somewhat interrupted towards the apex; both these are broadest on the inner margin; the space between them is of a deeper colour than the rest of the wing, and from the extremity of the second a pale streak proceeds to the apex of the wing: there is a black spot at the inner apex of the second fascia, and the inner marginal half of the first fascia has a black mark externally. There are some faint indications of a pale basal line, and the inner margin at the base is rather pale: cilia pale fuscous, interspersed with grayish atoms. Posterior wings clear gray, with paler cilia.

I took a specimen of this insect in Torwood, Stirlingshire, June 11th last, at the same time that I took my tenella. Mr. Logan has also a specimen, which he beat out of a hazel bush, near Luss, Dumbartonshire, on the evening of the 5th July last.

Duponchel's figure is very badly coloured, if this be really his species, as he represents the apical portion of the wings bright red; at any rate his figure agrees much better with this species than with *corylifoliella*, with which Guenée appears to have confounded it.

Sp. 28. SCITELLA, *Metzner* (fig. 26).

Opostega scitella, Metzner, MSS. Zeller, Isis, 1839.

Argyromiges Clerckella, Stephens, Illust. iv. 261. Wood's fig. 1337.

Expansion of the wings 2½—4 lines. Head bluish gray. Forehead metallic black. Palpi metallic black. Antennæ black. Thorax bluish gray. Abdomen fuscous, with the extremity paler. Legs and tarsi shining, pale fuscous. Anterior wings bluish gray to beyond the middle; then follows on the costal half of the wing a pale tawny blotch, interrupted by a clear white triangular mark: on the inner margin, at the anal angle, is an oval deep black spot, with a purple spot right across the middle of it: cilia white, except on the costa when opposite the tawny spot, with four very distinct black radiating lines from the apex. Posterior wings leaden gray, with paler cilia.

I have taken several of this insect myself, beating them out of whitethorn hedges, in May and June. Mr. Bedell took it in plenty, July 6th, 1845, out of whitethorn hedges, between Camberwell and Dulwich.

This insect is not the *Clerckella* of Linneus, who says, 'Fauna Suecica,' 1411, "Anterior wings silvery to the apex, substriated with brownish golden, and caudate, with a round black ocellus;" and in his next description (*Harrisella*) he says, "with the apex obtuse, not pointed as in the preceding." In the first place, the wings of *scitella* are not silvery, but grayish; in the second place, they are not caudate or tailed; and in the third place, the black spot is far from being "a round black ocellus," but at a first glance appears like two black round spots, with an oval violet one between them; and lastly, the idea of alluding to this insect as one with "pointed" wings is manifestly absurd, as it is notoriously the bluntest in the genus.

Sp. 29. SPARTIFOLIELLA, *Hubner* (fig. 27).

Tinea spartifoliella, Hubner, Ti. 335.

Argyromiges spartifoliella, Stephens, Illust. iv. 260. Wood's fig. 1336.

Elachista spartifoliella, Duponchel, xi. 514, Pl. 307, f. 8.

Lithocolletis spartifoliella, Zeller, Isis, 1839.

Tinea punctaurella, Haworth, Lepid. Brit. 578, 63.

Linnæa Entomologica, vol. ii. Pl. 2, f. 37.

Expansion of the wings $3\frac{1}{2}$ lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous, with the extremity paler. Legs and tarsi white. Anterior wings, to beyond the middle, pure white; beyond the middle is a yellowish spot on the costa, edged on both sides with fuscous, and nearer the apex is a similar spot continued into the fringe; at the anal angle is a lozenge-shaped silvery gray spot, edged on both sides with black: cilia white, except the yellowish patch before mentioned, and with three black radiating lines from the apex. Posterior wings whitish; cilia white.

Not a scarce species. It is often taken at Charlton. Last summer Mr. Jobson secured above fifty one morning, off broom, in the neighbourhood of Falkirk, Stirlingshire.

Sp. 30. CERASIFOLIELLA, *Hubner* (fig. 28).

Tinea cerasifoliella, Hubner, Ti. 190.

Elachista cerasifoliella, Duponchel, Sup. iv. 518, Pl. 89, f. 14.

Argyromiges unipunctella, Stephens, Illust. iv. 260. Wood's fig. 1335.

Opostega saligna, Zeller? Isis, 1839, 214.

Linnæa Entomologica, vol. ii. Pl. 2, f. 32.

Expansion of the wings $3\frac{1}{2}$ lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen pale fuscous. Legs white. Tarsi white. Anterior wings white, with two fuscous lines, more or less distinct, extending from the base to beyond the middle; they are both slightly curved, and meet nearly in a point; the space enclosed between them is generally fuscous towards the apex; a small angulated line extends from the costa to the extremity of these lines; beyond this an angulated fuscous line extends right across the wing, and between this and the apex there are on the costa two short fuscous lines, and towards the anal angle it is shaded with fuscous: these fuscous marks have often more or less of a golden tint: at the extreme apex is a conspicuous black spot: cilia whitish, with the two short costal lines continued through it, three radiating dark lines at the apex, and a dark arch from the apex to the anal angle. Posterior wings shining, pale gray, with whitish cilia.

I have formerly taken a considerable number of this insect, beating it out of ivy, from the middle to the end of April. It generally appears before the *Pontia*. The last two years I have not met with it. If this be the *saligna* of Zeller, it frequents "willows and poplars in spring and autumn."

Sp. 31. CLERCKELLA, *Linneus* (fig. 29).

Tinea Clerckella, Linneus, Fauna Suecica, 1411 (non Linn. Mus). Fabricius, Ent. Syst. iii. ii. 329. Haworth? Lepid. Brit. 578, 64.

Elachista Clerckella, Treitschke, ix. ii. 191. Duponchel, xi. 510, Pl. 307, f. 6.

Lyonetia Clerckella, Zeller, Isis, 1839, 216.

Argyromiges autumnella, Curtis, Brit. Ent., Genus 1025, p. 185.

Argyromiges nivella, Stephens, Illust. iv. 260. Wood's figs. 1332 and 1333.

Linnæa Entomologica, vol. ii. Pl. 2, f. 30.

Var. β . *Argyromiges semiaurella*, Stephens, Illust. iv. 260. Wood's fig. 1334.

Elachista æreella, Treitschke, ix. ii. 192.

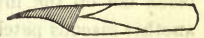
Elachista Fonscolombella, Duponchel, xi. 549, Pl. 309, f. 7.

Expansion of the wings $3\frac{3}{4}$ lines. Head white. Forehead white. Palpi white. Antennæ deep fuscous. Thorax white. Abdomen fuscous. Legs white. Tarsi white, annulated with black. Anterior wings pure white to beyond the middle; then follows a little fuscous patch, nearer the costa than the inner margin, beyond which is a fuscous fascia, followed by a pale line; the remainder of the wing is fuscous, terminating in a very conspicuous black dot: the shape of the apex of the wing is very peculiar, though much disguised by the long cilia, being a decided hook: cilia pale, with three little fuscous patches from the costa, a strong black line from the apex, and two curved fuscous lines opposite the hinder margin. Posterior wings clear gray; cilia grayish tawny.

Var. β *semiaurella* has the head, thorax and anterior wings of a bronze hue.

Taken by Mr. Weir near Tunbridge Wells, in July and August, off whitethorn, and once from birch; also taken by others near West Wickham, I believe out of whitethorn hedges.

This is not the *Clerckella* of the Linnean cabinet, which appears identical with the *prunifoliella* of Hubner (*Tinea*, 191); it wants the brown patch so conspicuous in *autumnella*; moreover, it has an extremely angulated fascia, before the apical dark part of which the inner marginal half extends much further towards the base of the wing than the costal half of it does.



The Linnean description is sufficiently vague to suit both species, "substriated with brownish golden." It neither mentions the brown patch of *autumnella*, nor the extremely angulated fascia of *prunifoliella*: this latter has not hitherto been detected in this country.

Zeller says of it, "At Berlin and Glogau, in gardens, in July and August." As the *Clerckella* of the Linnean cabinet answers his description quite as well as *autumnella* does, I should not have adopted its name for the latter species, were it not that it has been so generally adopted on the Continent, that without a more efficient reason I should not have considered myself justified in altering the continental name.

Sp. 32. PADIFOLIELLA, Hubner (fig. 30).

Tinea padifoliella, Hubner, Ti. 316.

Lyonetia padifoliella, Zeller, Isis, 1839, 216.

Expansion of the wings 5 lines. Head white. Forehead white. Palpi white. Antennæ deep fuscous. Thorax white. Abdomen pale fuscous. Legs pale fuscous. Tarsi dark fuscous, spotted with white. Anterior wings white, with a broad brownish band extending from the base to beyond the middle; it is straight on the side towards the costa (which it approaches very closely), till near its extremity, when it curves downwards; on its side next the inner margin, where its colour is always deepest, it is much sinuated; at its extremity it meets a very oblique and curved fascia, the lower half of which is much deeper in colour than the upper half; this is followed by a white patch on each margin: the apex of the wing is dark fuscous, terminating in a hook, as in the preceding, and with a black dot at the extreme apex: cilia whitish, with three fuscous patches proceeding from the costa, a strong black line from the apex, a dark curved line round the apex, and two wavy lines opposite the hinder margin. Posterior wings clear gray; cilia grayish, with a violet tinge.

A local species, taken by Mr. Desvignes, in September, in Whittlebury Forest, off maple and whitethorn.

Sp. 33. RHAMNIFOLIELLA, Tischer (fig. 33).

Elachista rhamnifoliella, Tischer, MSS. Fischer von Röslerstamm, Abbildungen, ii. Heft. S. 10, lib. 7, fig. a—m. Duponchel, xi. 522, Pl. 307, f. 11.

Lyonetia rhamnifoliella, Zeller, Isis, 1839, 216.

Expansion of the wings $3\frac{3}{4}$ —4 lines. Head white, with a few fuscous hairs. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous, with the extremity paler. Legs white. Tarsi white, annulated with black. Anterior wings white, with fuscous irrorations, and two fuscous patches on the costa; one before, the other beyond the middle, both slanting towards the anal angle; on the inner margin near the base is a small dark patch, and about the middle a larger dark patch, sometimes joining the opposite one from the costa; there is a conspicuous black dot on the inner margin of this patch; the apex of the wing is occupied by another fuscous patch, with a black dot immediately before it, and another at the extreme apex: cilia pale fuscous, with a dark arch round the apex of the wing. Posterior wings gray; cilia grayish brown.

This occurs in plenty at Sanderstead, in July, on the buckthorn.

It appears, from the most interesting account of the transformations and habits of this insect, given by Fischer, "that the caterpillar is very abundant on all species of Rhamnus, sometimes as many as a dozen on a single leaf." They however keep "on the underside of the leaf, the surface of which they eat, producing many holes." "When they are full grown they are scarcely a quarter of an inch in length. Their colour is greenish yellow, and in most specimens the three first segments are tinged with reddish brown." At the end of September it spins a cocoon, "which it fastens to the twigs, stem, leaves, or to moss; in this cocoon it passes the winter, and in February or March is transformed into a chrysalis. The perfect insect appears at the end of May or in the course of June."

Sp. 34. *BOYERELLA*, Duponchel (fig. 34).

Elachista Boyerella, Duponchel, xi. 545, Pl. 309, f. 3.

Lyonetia albedinella, Zeller, Isis, 1839, 216.

Elachista albedinella, Duponchel, Sup. iv. 341, Pl. 78, f. 10.

Tinea cuculipennella, Haworth, Lepid. Brit. 579, 67 (non Hubner).

Argyromiges cuculipennella, Stephens, Illust. iv. 258. Wood's fig. 1326.

Linnæa Entomologica, vol. ii. Pl. 2, f. 44.

Expansion of the wings $3\frac{1}{2}$ —4 lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous, with the extremity fulvous. Legs white. Tarsi white, annulated with black. Anterior wings white, interspersed with fuscous atoms, with three fuscous patches on the costa and two on the inner margin: the first costal patch is about the middle of the wing, is slanting, and with the extremity somewhat continued towards the apex of the wing; the second is similar to it, but of a deeper colour, and with a black line at its extremity; the third is at the apex of the wing, also terminating in a black line: the first inner marginal patch is in the middle of the wing, and forms very nearly a semi-circle; it has a dark line on its inner margin; the second is situated at the anal angle; the irrorations are sometimes so thick on the inner margin near the base as to present the appearance of a third patch: cilia fuscous, with a dark arch round the apex. Posterior wings clear gray; cilia paler and fulvescent.

Distinguished from the preceding by the anterior wings being much narrower, and by the two black *lines* towards the apex, instead of the black dots as in *rhamnifoliella*.

Some years ago I beat several specimens of this insect out of a hawthorn hedge near Lewisham, at the end of May; and last year, in May, I took two very fine specimens off a low fence near Beckenham.

Sp. 35. *CRATÆGIFOLIELLA*, Zeller (fig. 35).

Lyonetia cratægifoliella, Zeller, MSS.

Lyonetia cratægi, Zeller, Isis, 1839, 216.

Elachista cratægifoliella, Duponchel, Sup. iv. 339, Pl. 78, f. 8.

Tinea cuculipennella, var. γ . Haworth, Lepid. Brit., 579, 67.

Argyromiges rufipunctella, Bent. Mus.

Argyromiges ulmella, Stainton, in litt.

Expansion of the wings $3\frac{1}{2}$ lines. Head grayish fulvous. Forehead white. Palpi white. Antennæ pale, annulated with fuscous. Thorax grayish fulvous. Abdomen fuscous, with the extremity fulvous. Legs whitish. Tarsi whitish, with two dark fuscous spots. Anterior wings griseous fulvous, with two darker patches on the costa, one before, the other beyond the middle, the second terminating in a black line; about the middle of the inner margin is a dark patch, edged with brown on its upper margin; the space between this and the apex of the wing is dark, with the exception of a pale mark just beyond this patch; the costal half of the apex is also dark, and there is a fuscous indistinct streak at the base of the wing: cilia pale fuscous, with a dark arch round the apex of the wing. Posterior wings clear gray; cilia paler and slightly fulvous.

I took a little swarm of this insect at Riddlesdown last May 31st: they were flying

in the evening round the twigs of different bushes of hawthorn, sloe, &c., in company with *Microsetia cinereo-punctella*.

According to Zeller this species feeds on the hawthorn, in the same way that *rhamnifoliella* feeds on the buckthorn.

I cannot at all make out what insect Haworth's *rufipunctella* is: he says (Lepid. Brit., 580, 71),—"Anterior wings cinereous, with three equidistant short fasciæ; the first before the middle, near obsolete; the second, in the middle, composed of a white spot, a less one black, and a red one more or less united; the third fascia is beyond the middle and very like the second. Posterior wings leaden fuscous. Expansion of the wings $3\frac{3}{4}$ lines. I have only seen one specimen, which I took by beating hawthorn."

Sp. 36. *SIRCOMELLA*, *Stainton* (fig. 36).

Lyonetia ulmella, Mann? in Cat.

Argyromiges ulmella, Bent. Mus.

Tinea cuculipennella, var. δ . Haworth, Lepid. Brit. 579, 67.

Argyromiges ulmifoliella, Sircom. in litt.

Wood's fig. 1331.

Expansion of the wings $3\frac{1}{2}$ lines. Head tawny. Forehead whitish. Palpi whitish. Antennæ pale, annulated with fuscous. Thorax tawny. Abdomen fuscous, with the extremity paler. Legs pale fuscous. Tarsi pale fuscous, spotted with black. Anterior wings grayish tawny, with four deep fuscous patches on the costa; the first, at the base of the wing, extends half across the wing, and its outer margin slants towards the anal angle; the second is very small, and is a little before the middle of the wing; the third is beyond the middle of the wing, is very dark, and extends half across the wing, and in some specimens there is a black dot at its apical extremity; the fourth is at the apex of the wing, and has also occasionally a black dot at its extreme apex: on the inner margin is one large semicircular dark patch, nearly in the middle, which nearly joins the third costal patch: cilia pale grayish tawny. Posterior wings clear gray; cilia grayish tawny.

I met with two specimens on a low fence near Beckenham, in May last, and afterwards took a specimen at Lewisham. Mr. Sircom also takes it in some plenty.

The dark mark on the costa, at the base of the anterior wings, easily distinguishes this from the preceding species, and the colour of the head is much darker. In Mr. Stephens' cabinet a specimen of each of these two species is placed as *rufipunctella*.

Sp. 37. *LOGANELLA*, *Stainton* (fig. 37).

Expansion of the wings 4 lines. Head grayish fuscous. Forehead black. Palpi white. Antennæ gray, annulated with black. Thorax blackish. Abdomen deep fuscous. Legs dark fuscous. Tarsi pale fuscous, with darker annulations. Anterior wings very dark, almost black, with two white spots on the inner margin, one about the middle rather curved outwardly, and one smaller near the anal angle; the costa has six white spots beyond the middle, all very small, the second of which is continued pale fuscous right across the wing, but shows a conspicuous white spot just before it reaches the middle of the wing; at the extreme apex is a black spot: cilia fuscous,

except when opposite the spots, where it is white. Posterior wings fuscous, with paler cilia.

I have only seen a single specimen of this insect, which was taken by Mr. Logan, near Luss, Dumbartonshire, on the evening of July 5th last, off a hazel bush.

It does not appear to be known on the Continent; at any rate I have neither been able to find it figured, or to recognize it in any of the descriptions.

Sp. 38. *OMISSELLA*, Douglas (fig. 38).

Argyromiges omissella, Douglas, MSS.

Expansion of the wings $3\frac{3}{4}$ lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous, with the extremity fulvous. Legs white. Tarsi white, annulated with fuscous. Anterior wings pale fuscous, deepest towards the apex, with four white transverse fasciæ; one, rather obscure and interrupted, near the base; a second near the middle, placed obliquely, and broadest on the inner margin; a third beyond the middle, broadest on the costa; and a fourth near the apex, nearly straight, and continued through the cilia: there is a pale mark on the inner margin, between the second and third fasciæ: cilia fuscous, palest at the apex of the wing, with two darker curved lines going round the apex and to the anal angle; one of these is nearly in the middle of the cilia, the other at their extreme edge. Posterior wings clear gray, with paler cilia.

Three specimens of this were taken by Mr. Douglas, July 29th last year, at the Charlton sand-pit, flying among the herbage at dusk.

I cannot find it figured in any continental work, nor can I recognize it in any of the descriptions.

Sp. 39. *ARGENTIPUNCTELLA*, Weir (fig. 39).

Argyromiges argentipunctella, Weir, MSS.

Expansion of the wings 3 lines. Head fuscous. Forehead silvery. Palpi white. Antennæ pale, annulated with fuscous. Thorax fuscous. Abdomen fuscous. Legs fuscous. Tarsi black, spotted with white. Anterior wings brownish, with four silvery spots on the costa and four on the inner margin; the first costal spot is near the base, and is prolonged obliquely, often meeting the second inner marginal spot across the wing; the second costal spot is in the middle of the wing and reaches half across it; the third is beyond the middle, and is not so long as the second; the fourth is near the apex, and appears to turn round and come out again just before the apex, making an Ω -like mark: the first inner marginal spot is very close to the base; the second forms (as before said) a continuation of the first costal spot; the third is rather beyond the termination of the second costal spot; and the fourth just beyond the termination of the third costal spot: the first, third and fourth are all small and nearly circular: at the apex of the wing is a dark spot: cilia fuscous, with a dark arch at its extremity round the apex of the wing. Posterior wings gray; cilia paler.

This has considerable affinity with the preceding species.

Taken by Mr. Weir last year, in July and August, near Tunbridge Wells, off *Genista tinctoria*.

I have not been able to find this figured or described in any continental work.

Sp. 40. QUERCETELLA, Zeller (fig. 40).

Coriscium quercetellum, Zeller, Isis, 1839. Linn. Entom. ii. 366, Pl. 2, f. 20 (non Dup.)

Elachista Curtisella, Duponchel, xi. 546, Pl. 309, f. 4.

Expansion of the wings $4\frac{1}{2}$ lines. Head tawny. Forehead whitish. Palpi whitish. Antennæ pale, annulated with dark fuscous. Thorax tawny. Abdomen gray, with the extremity paler. Legs pale fuscous. Tarsi pale fuscous, with darker annulations. Anterior wings tawny fuscous, with four pale luteous fasciæ; the first before the middle, slightly angulated near the inner margin, and bordered internally with blackish, which is continued along the inner margin to the base; the second in the middle, sometimes interrupted, the outer margin nearly straight, but the inner margin much angulated and bordered with black; the third beyond the middle, curved and very narrow on the inner margin; the fourth is similar to the third, but smaller; the third and fourth are margined internally with blackish on the costa; on the hinder margin are some deep black spots, with a bluish tinge in certain lights: cilia pale luteous, with a strong black line proceeding from the apex of the wing; above this are two dark small patches, and two others curved opposite the hinder margin of the wing. Posterior wings clear gray, with paler cilia.

Taken by Mr. Bedell, September 27th, 1846, in Hainault Forest, flying among oak, hornbeam and whitethorn. Mr. Sircom also takes this among oaks, and its capture by Mr. Curtis is recorded in the 'Zoologist' (Zool. 1985).

This seems a connecting link between the *Argyromiges* and *Gracillaria*: in the shape of the anterior wings it much resembles *Clerckella*, but the structure of the palpi, which are recurved, evidently places it apart from that species.

H. T. STAINTON.

March, 1848.

Descriptions of Three undescribed British Species of the Genus Aphelosetia.

By H. T. STAINTON, Esq.

THESE three species are *obscurapunctella*, *biatomella* and *rhynchosporella*.

Sp. 1. OBSCURAPUNCTELLA, *Stainton*.

Tinea oleella, Haw. (non Fab.) *Aphelosetia oleella*, St.

Expansion of the wings 4—5 lines. Head, thorax and anterior wing glossy grayish brown, the latter with a *very faint appearance* of two darker spots near the inner margin, one about the middle, the other rather beyond. Posterior wings gray, with paler cilia.

This insect is not described by Haworth or Stephens; they merely quote Fabricius's description of an insect *which feeds on the olive*.

Not a common species: it appears very early in spring, and frequents hedges in the south of England: I have taken it here and at Dartford Heath. Mr. Sircom takes it at Brislington.

Sp. 2. BIATOMELLA, *Stainton*.*Apheloseitia floslactis*, Sircom in litt.

Expansion of the wings 3—4 lines. Head, thorax and anterior wings powdery gray, the latter with two dark spots; one near the inner margin, about the middle of the wing; the other, which is larger, a little above the anal angle: at the apex of the wing, on the costa, a darker patch is visible in certain lights. Posterior wings gray, with paler and slightly yellowish cilia.

Taken last summer by Mr. Sircom, on Durdham Downs.

Sp. 3. RHYNCHOSPORELLA, *Stainton*.

This has a certain resemblance to the preceding species, but the dark fascia beyond the middle of the anterior wings will readily serve to distinguish it. It is found in the North of England and Scotland. In the summer of 1846 I took several at Kilmun, on the top of a hill, in boggy ground: they were hovering over and settling on the beak rush (*Rhynchospora*), whence the name.

Expansion of the wings 4—5 lines. Head, thorax and anterior wings dirty white, the latter rather darker on the costa, and with a dark spot about the middle of the wing; near the inner margin, and beyond the middle is an angulated dark (rather tawny) fascia; at the apex of the wing on the costa is a dark blotch. Posterior wings gray, with paler cilia.

H. T. STAINTON.

Mountsfield, Lewisham,

April 10, 1848.

Occurrence of Criorhina asilica near Penmanshiel.—I took two specimens of this fine fly, in a marshy wood near Penmanshiel, on the 3rd of April: they were both males: one was frequenting a swampy spot, like an Eristalis. Next day I took another, a female, on the flowers of the sallow, and saw a fourth basking on a stone. I am not aware that it has hitherto been found in Scotland. I took a female two years since in May, near South Shields, on the flowers of dandelion.—*James Hardy; Penmanshiel, by Cockburnspath, Berwickshire, April 5, 1848.*

Occurrence of Dilophus tenuis at Redheugh.—I met with this species abundantly on the sea-banks near Redheugh, Berwickshire, in July, on the flowers of the cowparsnep. I find no description of the female. In my specimen it is not so bulky as the male; the coxæ are black, and the remainder of the legs shining brunneo-ferruginous; the wings are whitish, iridescent, with a black stigmatic spot.—*Id.*

Occurrence of Medeterus conspersus.—I find this pretty species very common on heaths, around small pools of water. It is accompanied by *M. curvipes* and *M. scambus*, but is not so disposed as either of them to promenade upon the surface, and is much more readily taken. All three may feed upon gnats, which issue forth in great swarms on the milder days.—*Id.*

Galls of the Meadow-sweet.—The leaves of the meadow-sweet (*Spiræa Ulmaria*) in autumn are often clustered with a number of small yellowish or rust-coloured

excrescences. Suspecting these to be galls I enclosed them in a box; and upon examining them, at the close of the next spring, I found they had produced two dipterous insects—a species of *Phytomyza*—and a large number of a chalciditous insect, which had been parasitical on the rightful inmate. Mr. Walker states it to be *Callimome posticus*. This was in the vicinity of Newcastle. On the 15th September, 1847, I found an abundance of a large, reddish, irregular shaped, fleshy gall, nearly as conspicuous as the bedeguar on the briar produced by *Rhodites Rosæ*, at the roots of the same plant, in marshy places on the sea-banks, near Redheugh, Berwickshire. Like that of the briar it was a social production, and was peopled by a community of small grubs. I have not succeeded in rearing the perfect insect.—*Id.*

Gall of the Tansy, with a Description of the Fly by which it is occasioned.—On the 29th of August, 1846, I found the flowers of the tansy (*Tanacetum vulgare*), near Derwenthaugh, county of Durham, disfigured by a large dark green protuberant gall, rising from the middle of the flower; at the base of this I found a white larva, with a slight pink tinge, from which I bred, shortly after, a considerable number of a species of *Cecidomyia*, which comes nearest to the *C. bicolor* of Meigen. The following are the characters of the insect.

Female (alive). Antennæ rather long, fuscous, the joints with pale bases and tips: head and thorax black, sides of the latter purplish: abdomen purplish, dusky at the tip, a duskier band across each segment, bearing rows of whitish bristly hairs, most distinctly seen at the sides; beneath, with a row of dusky bristle-bearing points along the centre; ovipositor long, about a third of the body, approaching to bulbous at the root and narrowed to a point, very flexible, flesh-coloured, slightly fuscous on the top, the point pale: legs long, slender, and with the halteres pale testaceous: wings with a dark tinge, slightly yellowish at the base,—the red pulp of the body running up and colouring the nervures, of which only two are distinctly marked,—finely fringed. Length $\frac{3}{4}$ —1 line.

Female (dead). Antennæ dusky: head and thorax black: abdomen dull flesh colour: legs and halteres dirty white: wings darkened.

Male (alive). Antennæ black: eyes black: front, and the breast before the anterior legs, pale pink coloured: abdomen narrower, dusky, pale at the tip, a row of impressions on each side above, somewhat hairy, the apex furnished with two hooks. Smaller than the female.—*Id.*

Parasite of Aleyrodes Chelidonii.—In the autumn of 1846, I found, in the woods near Gibside, the underside of the leaves of the common honeysuckle (*Lonicera Periclymenum*) abounding with the scale-like larvæ and pupæ of *Aleyrodes Chelidonii*, attached close to the cuticle. Having brought some home, for the purpose of breeding perfect specimens, I found that, besides producing *Aleyrodes*, considerable numbers of a minute hymenopterous insect had issued from within. Some of them were still adhering to the scales, of which those that had been infested with it were distinguishable by a black speck on their surface. The parasite, Mr. Walker informs me, is *Myina Chaonia*.—*Id.*

Descriptions of the British Species of Bees belonging to the Genus Halictus of Latreille. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

(Concluded from page 2108).

Sp. 16. HALICTUS INTERRUPTUS, *St. Fargeau*.
Hylæus interruptus, Panzer.

Male.—(Length $2\frac{3}{4}$ lines). Black; the face clothed with short silvery pubescence; the apex of the clypeus, the labrum and mandibles yellow, the latter black at their extreme base and ferruginous at their apex; the antennæ fulvous beneath, the scape black. Thorax rather deeply and closely punctured, sometimes a lateral white spot on the collar; the tegulæ piceous; the nervures rufo-piceous; the wings hyaline and iridescent; the metathorax rugose, rotundate; all the tibiæ at their base and apex, and the tarsi, pale luteous; the claws ferruginous. Abdomen cylindrical, closely and not very finely punctured; the basal, and sometimes a portion of the second segment, red; the second, third and fourth segments have a narrow white marginal fascia, interrupted in the centre; beneath, the margins of the segments depressed and narrowly piceous.

Of this beautiful little species I only know two cabinets which possess a specimen,—that of the British Museum and of Mr. Desvignes; they were both captured by Dr. Leach, at Kingsbridge, Devonshire: there is a very good figure of it in Panzer. *H. interruptus* more closely resembles *H. albipes* than any other British species, but the antennæ are of a different colour beneath, the thorax is more coarsely punctured, and the metathorax has not the sub-defined, half-circular, rugose space, always present in that species; its abdomen also is shorter and more strongly punctured. The species is undoubtedly very local, only two specimens having been met with.

Sp. 17. HALICTUS ALBIPES, *St. Fargeau*.

Prosopis albipes, Fab. Syst. Piez. *Hylæus albipes*, Fab. Ent. Syst. Em. *Apis albipes*, Panzer. *Melitta albipes*, Kirby. *Melitta obovata*, Kirby, *female*.

Female.—(Length 4 lines). Black; the face thinly clothed with pale fulvous pubescence; tips of the mandibles ferruginous; the an-

tennæ piceous beneath. Thorax closely and finely punctured, thinly clothed on the disk with pale fulvous pubescence, rather more dense on the sides; the tegulæ piceous; the wings subhyaline; the nervures testaceous; the metathorax truncate; the legs have a similar pubescence to the thorax, but brighter on the posterior tibiæ. Abdomen oblong-ovate, rather widest towards the apex, smooth and shining; the basal margin of the second, third and fourth segments, has a fascia of white or pale yellow pubescence; the apical segments have a thin, short, griseous pubescence, pale fulvous at the apical incision.

Male.—(Length $3\frac{1}{4}$ —4 lines). Black; the face clothed with short white pubescence, the nose much produced; the apex of the clypeus, the labrum and mandibles yellow, the latter black at the base and ferruginous at the apex; the antennæ as long as the head and thorax, dark rufo-piceous beneath; the scape black. Thorax closely punctured; at the base of the metathorax is a rugulose half-circular space, having a defined raised margin; the tubercles have generally a pale yellow spot, as well as the tegulæ in front, posteriorly testaceous; the wings hyaline, splendidly iridescent; the nervures nigro-piceous; the femora at their apex, the tibiæ at their base and apex, and the tarsi entirely, pale yellow; the claws pale ferruginous. Abdomen linear, rather broadest towards the apex; the base of the first segment black; its apical margin and the second and third segments red; a minute black dot at the basal margin of the second and third segments laterally, sometimes a transverse black dash in their centre, differing much in size, at times nearly as wide as the entire segment on the third, leaving only the margins red; the margins of the remaining segments rufo-piceous,—sometimes black, only rufo-piceous on the margins.

This species is not so abundant as *H. abdominalis*, but the sexes resemble those of that insect; both are, however, quite distinct: independent of size, the female has the clypeus much more produced, and the abdomen is of a different form. The male is very distinct; the colour of the mandibles, tibiæ, &c., are characteristic differences, and also the sculpture of the metathorax. I once found a small colony of *obovata* in Hampshire, where I found the males entering and issuing from the same burrows with the females. Mr. Walcott also agrees with me in the propriety of uniting these insects. St. Fargeau doubts *H. albipes* being distinct from *H. abdominalis*, but I suspect he had not had an opportunity of observing the habits of the species. Panzer has a tolerable figure of this species.

Sp. 18. HALICTUS PRASINUS, *Smith.*

Female.—(Length $4\frac{1}{2}$ lines). Black; the face thinly clothed with pale yellow pubescence; the clypeus produced, shining, and having a few large punctures; the mandibles ferruginous at their apex. Thorax nigro-æneous, finely and very closely punctured; the metathorax rotundate posteriorly; the tegulæ nigro-piceous; the wings subhyaline; nervures rufo-piceous; the pubescence on the legs is very pale fulvous, that on the tarsi beneath is fulvous; the claws ferruginous. Abdomen ovate, shining, finely and closely punctured; a very pale fulvous fascia on the basal margin of the second and third segments; the apical segments clothed with short pale fulvous pubescence, bright fulvous at the apex; the margins of the segments beneath have a thin pale fringe.

This species somewhat resembles *H. lævigata*, but the dark green colour of the thorax, so finely and closely punctured, easily distinguishes it. The male I do not know. I possess three specimens; the description is drawn from one in the finest condition: the pubescence is entirely hoary in one which had been longer disclosed. I received one specimen from Mr. Dale, captured at Barmouth; one from the Rev. Mr. Little, from Scotland; the third was taken at Hawley, Hants. I never met with it or knew it to be taken in the vicinity of London.

Sp. 19. HALICTUS LUGUBRIS.

Melitta lugubris, Kirby, *male.* *Melitta lævigata*, Kirby, *female.*

Halictus lævigatus, St. Fargeau.

Female.—(Length 4 lines). Black; the face has a very thin pale fulvous pubescence. Thorax shining, punctate, the punctures large and not very close, thinly clothed with ferruginous pubescence on the sides and metathorax, the latter truncate; the margin of the truncation is produced laterally, forming a short tooth; the tegulæ nigro-piceous; the wings subhyaline, slightly clouded at their margins; the pubescence on the legs is rufo-fulvous; the scopa is bright golden yellow; the tarsi bright fulvous beneath; the claws ferruginous. Abdomen smooth, bright and shining, and having a few scattered punctures; a little rufo-fulvous pubescence at the base; the basal margin of the second, third and fourth segments has a fascia of pale rufo-fulvous pubescence, the first usually and the second also frequently interrupted; the apex

pale fulvous, as well as the marginal fringe on the apical margins beneath.

Male.—(Length 3 lines). Black; the head as wide as the thorax, the face thinly clothed with short white pubescence; antennæ as long as the head and thorax; the nose black. Thorax punctured, the punctures not very close, the pubescence hoary; the metathorax rotundate; the tegulæ pale rufo-piceous; the wings hyaline, iridescent; the nervures rufo-piceous; the anterior and intermediate tibiæ at their extreme base, the posterior at their base and extreme apex, and all the tarsi, luteous; claws rufescent. Abdomen linear, smooth and shining, with a few scattered punctures; the second, third and fourth segments, laterally, have at their basal margins a small patch of white pubescence.

The female of this species is the *Melitta lævigata* of Kirby. I believe Mr. Thwaites was the first to discover the affinity of the sexes. I have since taken them on several occasions in company. This bee is rather local, and not one of the most abundant species. I have seen specimens captured in Scotland, also in the Isle of Wight, so that it is doubtless scattered over the country.

Sp. 20. HALICTUS FULVICORNIS.

Melitta fulvicornis, Kirby.

Male.—(Length $3\frac{1}{2}$ lines). Black; the lower portion of the face clothed with short white pubescence; above the base of the antennæ the pubescence is thin, and stained with yellow; antennæ rather longer than the thorax, rufo-piceous above, rufo-fulvous beneath; scape black. Thorax closely punctured; metathorax truncate; tegulæ piceous; the wings hyaline, iridescent; the nervures nigro-piceous; all the tibiæ at their extreme base and apex yellow; all the tarsi yellow; the claws ferruginous. Abdomen linear, very smooth and shining; the intermediate segments slightly depressed, and having at their lateral basal margin a little patch of white pile.

This species is not frequently met with; it occurs, however, about London, but I do not know the other sex: it resembles the male of the preceding species, but it has a white nose, which is also more produced, and the thorax much more minutely and closely punctured. It may possibly be the male of *H. malachurus*.

Sp. 21. HALICTUS LEUCOZONIUS, *St. Fargeau*.

Melitta leucozonina, Kirby. *Apis leucozonina*, Schrank ?

Female.—(Length 4—4½ lines). Deep black; the face has a thin, scattered, pale fulvous pubescence; the mandibles ferruginous at their apex; the tongue at the apex acuminate. Thorax rather coarsely punctured; the metathorax rugose, truncate posteriorly; the tegulæ nigro-piceous; the wings hyaline, slightly iridescent; the nervures ferruginous; the tarsi and posterior tibiæ have a fulvous pubescence; the apical joints of the tarsi ferruginous. Abdomen sub-ovate, shining, entirely closely and finely punctured; the second, third and fourth segments have on their basal margins, laterally, a patch of white pubescence, the third frequently obliterated; the apical incision pale fulvous; beneath coarsely punctate, and the margins fringed thinly with pale yellow pubescence.

Male.—(Length 3—3¾ lines). Black; the face clothed with short white pubescence, slightly stained with ochraceous towards the vertex; the nose white at the apex, and the mandibles ferruginous at their tips. Thorax shining, rather coarsely punctured; the wings clear hyaline, splendidly iridescent; the basal joint of the intermediate and posterior tarsi white; the apical joint ferruginous. Abdomen oblong-ovate, shining, entirely closely and not very finely punctured; the second and third segments have at their basal margins, laterally, a slight patch of white pubescence, frequently obliterated.

This species is very distinct from all the preceding. The male has the wings quite colourless and splendidly iridescent. The species is not uncommon in the neighbourhood of London, and is, I believe, generally, but not very abundantly, distributed. I have captured it in Yorkshire, Kent, Middlesex. Hants, Berks, &c.

Sp. 22. HALICTUS ZONULUS, *Smith*.

Female.—(Length 4½—5 lines). Deep black; a thin ochraceous pubescence on the face. Thorax closely punctured; the metathorax truncate posteriorly; the tegulæ nigro-piceous; wings subhyaline; nervures ferruginous; the thorax and legs have a pale fulvous pubescence, bright on the tarsi and posterior tibiæ; the claws ferruginous. Abdomen ovate, shining, regularly, finely and closely punctured, more sparingly so on the basal segment; the three intermediate

segments have a little white pubescence at their basal margins laterally; beneath rather coarsely punctured.

Male.—(Length $3\frac{1}{4}$ —4 lines). Black; the face clothed with short white pubescence, stained with yellow towards the vertex; the nose generally black, but sometimes with a small yellow spot. Thorax clothed thinly with ochraceous pubescence, closely and rather deeply punctured; wings subhyaline; the legs have a little pale ochraceous pubescence; the claws ferruginous. Abdomen oblong-ovate, shining, finely punctured; a little white pubescence at the basal margins, laterally, of the three intermediate segments.

This species very closely resembles the *leucozon*ia, but is very distinct. The female is much more closely punctured on the thorax, which is not so glossy; the metathorax is not so coarsely rugose; the abdomen is more finely punctured, and more sparingly so on the basal segment, and the insect is generally rather larger than *leucozon*ia: the male may at once be known by its having entirely black legs. The species does not appear to be so abundant as *leucozon*ia. I took my specimens in the neighbourhood of Woolwich: the male I received from Scotland. Mr. Walcott has taken it near Bristol.

Sp. 23. *HALICTUS MACULATUS*, *Smith*.

Female.—(Length —? lines). Black; the head subquadrate; the face thinly clothed with pale ochraceous pubescence; the clypeus coarsely punctured, very slightly produced; the antennæ nigro-piceous at their apex beneath. Thorax closely and not very finely punctured; the metathorax rotundate; the tegulæ piceous; the wings slightly fuscous; the nervures ferruginous; the tarsi and posterior tibiæ have a very pale fulvous pubescence; the apical joints of the tarsi ferruginous. Abdomen oblong-ovate, shining, and very delicately punctured; on the apical margin of the segments, laterally, is a short white fascia.

This very pretty species I captured in Hampshire: when taken I mistook it for *Osmia leucomelana*, which it much resembles; its subquadrate head and the eight lateral spots give it a very strong resemblance to that insect. I possess but a single specimen, and do not know the male. I suspect it is a rare species, as I have since repeatedly searched the locality for it, but in vain.

Sp. 24. HALICTUS QUADRINOTATUS.

Melitta quadrinotata, Kirby.

Female.—(Length 3—3 $\frac{3}{4}$ lines). Black; a few scattered ochraceous hairs on the face. Thorax rather deeply punctured; metathorax rotundate; tegulæ nigro-piceous; the wings subhyaline; the nervures testaceous; the pubescence on the legs is cinereous, but fulvous on the tarsi beneath. Abdomen ovate, shining, evenly but delicately punctured; at the basal margin of the second and third segments, laterally, is a small patch of white pubescence; the apical segments are clothed with a short whitish down or pile; the incision at the apex fulvous.

Male.—(Length 2 $\frac{1}{2}$ —3 lines). Black; the antennæ not quite so long as the head and thorax; the face has a little short hoary pubescence; the nose at the apex, and the labrum, white. Thorax closely punctured; the metathorax rotundate; the wings hyaline and iridescent; the tibiæ at their base and apex, and all the tarsi, pale luteous; the apical joint ferruginous.

This species, although somewhat like the preceding, is very distinct: in the female the most striking difference is, that the four white spots on the abdomen are placed on the basal margins of the segments; whereas, in the former species the eight spots are on the apical margins. This little bee is not at all uncommon. I have seen specimens captured in Scotland, Wales and the Isle of Wight.

Sp. 25. HALICTUS XANTHOPUS.

Melitta xanthopus, Kirby. Not *Andrena fodiens*, Latr. *Lasio-glossum tricingulum*, Curtis.

Female.—(Length 5—6 lines). Black; a little pale pubescence at the base of the antennæ; the clypeus produced, coarsely punctured; the mandibles ferruginous at their tips, somewhat forcipate. Thorax clothed with ferruginous pubescence, most sparing on the disk, which is strongly and closely punctured; metathorax rotundate posteriorly; the tegulæ piceous; the wings subhyaline, slightly clouded at their apical margins; nervures testaceous; the legs have a rufo-fulvous pubescence; the posterior tibiæ and tarsi, the intermediate tarsi, and apical joints of the anterior, rufo-testaceous. Abdomen ovate, shining, closely and delicately punctured; a little fulvous pubescence at the sides of the basal segment; on the basal margin of the second,

third and fourth segments, is a fascia of white pubescence, usually interrupted on the first, sometimes on the second also, or subinterrupted; the pubescence on the apical segment stained with fulvous.

Male.—(Length $4\frac{1}{2}$ — $5\frac{1}{4}$ lines). Black; the antennæ nigro-piceous beneath; the face has a thin pale yellow pubescence; the clypeus has sometimes an obscure white spot at its apex. Thorax clothed with a thin pale rufous pubescence; the tegulæ nigro-piceous; the wings subhyaline, iridescent; the posterior tibiæ and tarsi, the intermediate tarsi, and apical joints of the anterior pair, rufo-testaceous. Abdomen subovate, widest towards the apex; a white fascia on the basal margin of the second, third and fourth segments, the two first more or less interrupted.

Walckenaer considers this species synonymous with the *Andrena fodiens* of Latreille, but such cannot be the case, since Latreille distinctly says the bands are on the *anterior*, or basal margins of the segments; the *fodiens* of Walckenaer, on the contrary, has the bands on the *posterior*, or apical margins: I therefore reject the synonymy. The male of this species is described by Mr. Curtis, in his beautiful work on British Genera, under the title of *Lasioglossum tricingulum*: it is raised to the rank of a genus on a difference in the form of the lobes of the maxillæ, but in fact several of the species of *Halicti* differ in that respect more or less from each other. Mr. Curtis has also given an admirable figure of the male. This species is very local, but abundant in several situations, particularly in the neighbourhood of Brighton. Mr. S. Stevens took it at Little Hampton, Sussex: it also occurs at Hastings. Mr. Kirby captured it at Barham, Suffolk.

Sp. 26. HALICTUS SEXNOTATUS, *Walckenaer, St. Fargeau.*

Melitta sexnotata, Kirby.

Female.—(Length 5 lines). Jet-black; a few scattered white hairs on the face. Thorax very closely and finely punctured, the pubescence white and very thinly scattered; the metathorax rotundate posteriorly; the wings subhyaline, clouded at their apical margins; the nervures nigro-piceous; the pubescence on the legs white, intermixed with fuscous on the posterior tibiæ above, on the tarsi beneath pale yellow. Abdomen very bright and shining, closely and very delicately punctured, a little thin white pubescence at the base, and a patch of the same colour on the basal margin of the three intermediate segments, the last frequently obliterated.

Male.—(Length 4 lines). Black; the antennæ not quite so long as the head and thorax, nigro-piceous beneath; the nose white at the apex; the face clothed with a short white pubescence. Thorax closely and finely punctured; the wings as in the female. Abdomen oblong-ovate, spotted as in the female.

I believe Mr. Kirby was the first to discover this very beautiful species at Barham, Suffolk. It is very local: the only spot where I ever met with it is Weybridge. I have taken it in June and September. It is rare in cabinets.

FREDERICK SMITH.

5, High Street, Newington,
February 19, 1848.

Note on Boreus hyemalis.—In the end of December, 1847, I met with a specimen of this curious insect in a tuft of *Trichostomum aciculare*, growing on a stone wall, in a wood near this place. It was very active, and emitted a scent somewhat resembling that of *Panorpa*. Respecting this insect, Mr. Walker observes in a note, "Nearly twenty years have now passed since I used to find *Boreus hyemalis* in moss near London, during the winter; but it was not uncommon at Gothenburg, in Sweden, while I was there in the autumn of 1836. The male seems to be much more scarce than the female."—*James Hardy*.

On the Functions of the Antennæ of Insects. By J. W. SLATER, Esq.

MUCH as has been written upon the functions of the antennæ, we are still very remote from a satisfactory conclusion. Their structure has been carefully and repeatedly examined by eminent anatomists, but the result has been in no manner decisive, except as showing them to be organs of importance and well supplied with nerves. In this case nothing remains but to endeavour, by observing their comparative development in species of different habits, to come to some conclusion as to their use. We must, in the first place, suppose them to be organs of sensation, from their position and structure, internal and external. Of the five senses which we recognize in animals, that of sight cannot come here in review, as its organs in insects are not doubtful. As little can we suppose them to be organs of taste, as this sense must be sought for in some part more intimately connected with the mouth, and capable of touching food during suction or mastication. The organs of the three remaining senses, touch, smell and hearing, are not yet established, and accordingly we find each of these functions assigned to the antennæ by a considerable number of entomologists. Those who consider them as the organs of touch have the general opinion and the idioms of several languages in their favour. It cannot be denied, moreover, that many insects, apparently at least, use the antennæ for this purpose, tapping and touching with them

the various objects with which they come in contact. But others rather avoid touching any object with their antennæ; and not a few, as the dragon-flies, from the minuteness and position of these organs, could not well apply them to such a use. Many Coleoptera seem to take very little notice if their antennæ are touched, which certainly does not seem to indicate them to be the chief seat of feeling. Neither is the structure of the antennæ amongst the nocturnal Lepidoptera, the gnats, and some of the Cerambycidae, suitable for this purpose. All these considerations would lead us to reject the view that the antennæ were universally and primarily organs of touch. It is, however, very possible that in some species they may have this function in a secondary manner, just as in the Pachydermata the nose, although retaining its ordinary functions, becomes also the organ of touch. It remains, then, for us to decide whether the antennæ be the seat of smell or of hearing; and the question naturally arises,—to what extent do insects possess these senses?

The sense of hearing is chiefly calculated to mediate intercourse amongst animals of the same species, and is mostly accompanied by a corresponding development of the voice. The majority of insects are mute and solitary, and we have little direct evidence to show whether they are capable of hearing or not. Various experiments have been undertaken to decide the question, but the results have frequently been dubious and even contradictory. In some species, as in *Blaps mortisaga*, in the Cicadas and several Orthoptera, the sense is undoubtedly present, though we have little knowledge of its degree of perfection. The sense of smell is of primary importance to most animals, especially in the pursuit and selection of their food, where it seems pre-eminently supplementary to the eye: it is, besides, frequently the principal medium by which they examine and recognize objects of whatever kind. Thus the dog, the cat, the horse, generally smell at any new or unknown body, and seem by that means to get a satisfactory idea of its nature. Amongst insects this sense exists in great perfection. With what unerring certainty will the ant or the wasp make their way to anything sweet, however carefully concealed! The Necrophaga and Geotrupidæ may often be seen flying along in a right line to those substances upon which they prey, even when totally hid from view. And to what other sense can we attribute the dexterity with which the parasitical Hymenoptera will detect their destined victim, however carefully covered up from view? The varied and powerful scents which many insects emit render it very probable that they may seek out those of their own species, pursue their prey, or be warned of the approach of an enemy by this sense. Almost all the carnivorous Coleoptera emit a very powerful odour, especially *Calosoma sycophanta*, many of the Staphylinidæ, the Necrophaga, several species of *Melœ*, *Cantharis*, &c., and in other orders the same property occurs to a greater or less extent. This certainly tends to support the view that the sense of smell must be well developed amongst insects.

If we turn to examine the comparative development of the antennæ in different insects, we shall generally find it most complete where the greatest accuracy of smell may be observed or inferred, and *vice versa*. The senses of sight and smell are, to a certain extent, capable of replacing each other as regards the pursuit of food. Some animals hunt by scent, others by the eye, and the development of the organs is generally proportionate, with the apparent exception that the eyes of nocturnal animals are mostly large, to take in as much light as possible: but for all this it is manifest that they require an acute scent, and this we find to be the case. The dragon-fly hunts by sight alone; its swift motions and the prodigious development of the eye render scent

almost unnecessary ; and here accordingly we find the antennæ small and comparatively simple. The *Necrophorus*, on the other hand, which seeks its food, as far as we can perceive, by scent alone, and which cannot flit up and down with the celerity and ease of the dragon-fly, has large clavate antennæ. In the nocturnal insects, where the eyes, though large, are frequently insufficient, we find, for the most part, large and complicated antennæ, as in *Saturnia* and *Melolontha*. Omnivorous insects do not require so powerful, or rather so delicate a scent, as those which are confined to one or two substances for food. Thus we see the antennæ of the Carabici, of the Staphylinidæ, of the common fly, comparatively simple ; promiscuous in their feeding, they are in little danger of famine. Very few, if any, of the Curculionidæ and Lamellicornes are omnivorous : most of the former are limited to some particular plant, whilst the latter, whether preying, like the Geotrupidæ, on animal refuse, or, like the Melolonthidæ, on leaves, or, like the Cetoniadæ, on flowers and the sap of trees, are equally select in their feeding.

The antennæ of male insects are usually more highly developed than those of females ; and this also affords a good argument in favour of their being olfactory organs. The males usually go in search of the females, whilst the latter remain concealed in trees and bushes, in some genera entirely apterous, and in all impeded in motion by the greater bulk of the abdomen. This difference in the habits of the sexes is in many species so marked, that the females are rarely taken whilst the males are abundant. The next question is, what sense guides the male to his partner in the midst of her concealment ? A stratagem successfully employed in capturing several nocturnal Lepidoptera seems to throw much light on the subject. If an unimpregnated female *Saturnia* be placed in a box, and carried out to some suitable place, males of the same species will come, often from a considerable distance, and alight upon the box. This cannot surely be referred to sight or hearing, or to any other sense with which we are acquainted, except smell, especially when we call to mind that an impregnated female has no such influence. Here, then, the male requires this sense in greater perfection than does the female, and the development of the antennæ perfectly agrees with this supposition. The antennæ of the larva are small and rudimentary, but attain full development simultaneously with the generative organs. Amongst higher animals we find the sense of smell remaining in like manner imperfect, until the age of maturity, as is especially the case in man. If the antennæ were the organs of hearing, we might naturally expect to find them most highly developed in those insects provided with a voice ; but this is not the case. If we observe an insect in search of food, we shall find that its antennæ appear excited, and when a suitable substance is found they are held near it, or sometimes made to touch it. Now we can understand an animal smelling its food, but why should it listen to it ? Offer honey to a *Lucanus cervus* (the size and—if I may so speak—the docility of this insect make it very proper for such experiments), and you will almost always see the leaves of his antennæ expand. Some naturalists have observed that insects move their antennæ if alarmed by a sudden noise, and have hence supposed this organ to be the seat of hearing. Such a conclusion is gratuitous : a man under similar circumstances may move his arms or legs in a convulsive manner, yet this does not prove them to be the organs of hearing. These considerations, I should submit, render it probable that the antennæ are the organs of smell or of some sense closely analogous.

List of Captures of Rare Insects in the New Forest.—I have just returned from a three weeks' stay at Lyndhurst, in the New Forest, and have been fortunate enough to meet with several rare species. The season appears a most favourable one; and, from the numbers of larvæ that occurred on the oaks and thorns, I think entomologists may this year expect to reap an abundant harvest. My best captures were the following.

LEPIDOPTERA.

Stauropus fagi. One male, trunk of an oak, May 20.

Penthophora nigricans, Curtis. This insect, of which there appears some doubt as to its true name, I found cases of, both near Ringwood and Lyndhurst, attached to the points of the heath and gorse, the third and last week in May. It was just the time to take them, as they were in pupæ, for not many days after they made their appearance in the perfect state, the female (previously unknown) looking more like a maggot than a complete insect, having neither wings or legs, or at least only the rudiments of minute legs. I obtained more than one hundred cases, but have only as yet reared fourteen males and about two dozen females: they are very slow in making their appearance, and always emerge from chrysalis (the males) between five and seven in the afternoon. The attractive power of this—in my eyes—not very beautiful lady, was singularly displayed one evening in the garden of the cottage I was at, which was more than half a mile from the heath, and where it was not likely any of the males could have been; however, it appears for about a quarter of an hour the garden was quite alive with them, from the numbers settling and flying round the box in which I had the cases, which I always kept out of doors and in the sun. I most unfortunately was not at home at the time, but the woman at the cottage secured one in a pill-box; but what is strange, they never came again, although I purposely left several females in the cage. I have had several pair, which takes place with the male within a quarter of an hour of emerging from chrysalis; in fact, as soon as he has dried his wings, he inserts his body into the case of the female till nothing is observable but his wings and head, and remains not more than half an hour *in coitu*: the female comes out of her case the following day, after laying all her eggs in the case. I shall try to establish a colony on one of our heaths near London. I don't think they occur near town, as I cannot suppose we could have overlooked them, they stand out so conspicuous on the heath and furze.

Dypterygia pinastri. One, at sugar, May 29.

Mesia favillacearius. One male, on Lyndhurst Common, May 27, in the evening.

Cleora viduaria. This beautiful species I found spread over the forest between Lyndhurst and Brockenhurst, but it was rare. I was only able to obtain seventeen specimens, all males, and I devoted several hours every day scraping down the trunks of the oak trees with a stick in search of them: this is a most successful plan to obtain some of the rarer species; it has the effect, generally, to make them fly off; otherwise, being so much the colour of the bark and lichen, they would remain unobserved.

Cleora cinctaria. This is more local than *viduaria*, but is rather more abundant, and obtained the same way. I took forty-two specimens, but only one male, which I suspect was full late, for they generally frequent the small oaks, and I found most of my specimens on the north side of Wallace's enclosure, in open parts of the forest: this, as far as I was able to judge, is decidedly the best part for collecting.

Alcis consortaria. Two, trunks of oaks, at sugar.

Tephrosia extersaria. Two, at sugar.

Ephyra orbicularia. One, on a fence near Lyndhurst, May 20.

Eurymene dolabraria. Five, trunks of oaks in the forest.

Harpalyce Silaceata. One, on a fence near Lyndhurst.

Lobophora viretata. One, ditto.

Lobophora sexualisata. One, ditto.

Eupithecia variegata. Seven, trunks of oaks in the forest.

Chlorissa viridata. Of this very beautiful species, which I hear has not been taken for many years, I was fortunate enough to meet with forty specimens, about half of which are fine, and in that condition it is a lovely thing, the pink border showing the green off to great advantage: it frequents heathy places in the forest, near Wallace's enclosure, and was generally obtained by beating the heath. I was not able to ascertain its right time of flight.

Macaria notata. One, flying at dusk in an inclosure.

Margaritia angustalis. Fifteen, flying over heath and fern in the forest.

Nola strigulalis. About two dozen, on trunks of oaks and on fences.

Anacampsis alternella. Three, trunks of oaks.

Batia lutarella. Old thorns.

Phycita bistriga. Two, old thorns.

Tinea tapetzella. On an old oak.

Lampronia rupella. Two, old oaks.

The sugar was almost useless, nothing scarcely but a few of *Thyatira batis* and *Aeronycta rumicis*, and those previously mentioned, came.

Larvæ were most abundant, particularly from the 18th to the 22nd of the month, and if I had had convenience for feeding them I should have taken great numbers; as it was I was obliged to select only a few of those that I considered the best: amongst them were *Catocala sponsa* and *promissa*, *Petasia cassinea*, *Hylophila prasinana*, *Cleoceris Oo*, *Tethea ridens*, *Pæcilocampa populi*, *Dasychira fascelina*, *Lithosia quadra*, and others that I am unacquainted with.

COLEOPTERA, ETC.

Tarus angularis. Seven, under turfs, Lyndhurst Common.

Pæcilus dimidiatus. Four, gravel-pits.

Cleonus nebulosus. Four, ditto.

Elater sanguineus. Five, under bark, stumps of oaks.

Elater ustulatus. One, beat out of whitethorn.

Serica brunnea. One, ditto.

Brachytarsus varius. One, beat out of an oak.

Leptura abdominalis. Sixteen, beat out of oaks and whitethorn, and on blossom.

Leptura præusta. Eighteen, ditto.

Clythra tridentata. Two, whitethorn blossoms.

Cicada anglica. Beat out of whitethorn.

There was scarcely any bloom on the whitethorn this year, which caused great disappointment to me, as I expected to reap a rich harvest of Coleoptera from its attractive powers.

My stay at Lyndhurst was from the 11th to the 31st of May, and the weather was

so favourable I was only confined two days to the house with rain.—*Samuel Stevens ; Vine Cottage, Blythe Lane, Hammersmith, Middlesex, June 10, 1848.*

Report of the Microscopical Society's Meetings.

March 29, 1848.—GEO. BUSK, Esq., President, in the chair.

A paper by Mr. Warington, 'On a New Fluid for mounting Minute Microscopical Preparations,' was read.

The fluid recommended by Mr. Warington is glycerine. It is the sweet principle of oil and fat, and is prepared by separating the fatty and oily acids, by combining them with any base for which they may have a stronger affinity, as in the making of soaps, &c., when the glycerine, which remains dissolved in the water employed in that process is found to possess the property of preserving animal and vegetable substances. Mr. W. was induced to try its application to the mounting of microscopic objects. This is effected in the same manner as that employed when spirit of wine or creosote water is used, when the object having been covered with a piece of thin glass, the margin is to be cemented with a coating of shell-lac varnish, the usual precautions being carefully observed. Gold size or copal dissolved in oil of lavender may also be used to effect the same purpose, and the second and third coatings of varnish may with advantage be of either of these, as they are less liable to become brittle than the shell-lac varnish alone. The glycerine may be used either thick or diluted with water, according to the object, and also with the addition of a small portion of common salt, corrosive sublimate, creosote, or spirit of wine, if considered desirable. Mr. Warington also described his method of mounting certain classes of objects in castor oil, such as crystals of salts, &c. The object being in a perfectly dry state, a small quantity of castor oil is to be carefully dropped on, and guided over the field with the point of a needle; and care being taken that the cell is perfectly full, without any excess, it is to be covered with a piece of thin glass, and the shell-lac varnish applied as in the former instance.

A second paper, by Dr. A. Clark, being 'Observations on the Anatomy of the Skin of a Species of *Muræna*,' was read.

The author commenced by stating, that the skin of this *Muræna* and of the allied genera consists of a primary or basement membrane and epithelial cells, the conjoint inflexions of which constitute the follicles or glands. Upon examining a vertical section of the skin with the naked eye, it appears to be divided into two pretty nearly equal parts. The outer one is dark, dense, firm and semitransparent; and the inner is yellowish, loose, oily and opaque. The first of these consists of the epithelium, the germinal membrane, the pigment, the glands and the fibrous tissue, which collectively form the skin proper; the latter of a very loose filamentous tissue, the interstices of which are filled with pale globules. The epithelial cells are situated on the surface of the skin, and are described as constituted of a transparent homogeneous cell-wall, lined on its internal surface by a layer of elementary molecules or granules; 2nd, of an eccentric nucleus; and 3rd, more or less solid or fluid cell-contents. In examining mucus scraped from several parts of the body, various modifications of the epithelial cells were observed, viz., ciliated, tessellated, caudate and spherical. The glands are

formed by inflexions of the primary or germinal membrane and its epithelium, and are situated in the textures of the skin, on the free surface of which they terminate by open mouths. The margins of the openings are thick, rounded, almost papilliform, and their cavities filled with small epithelial cells in various stages of development. Upon removing these, the interior of the gland is seen to be lined by a layer of small, flattened, nucleated corpuscles, resting on and attached to a very delicate homogeneous membrane, which lines the cavity of the follicle. Some of the openings of these glands or follicles are visible to the naked eye, as are those of the lateral line, while those of the general surface are only visible by the aid of the microscope. The fibrous tissue is well seen by examining a horizontal section of the skin by means of a deep lens, when numerous bundles of that tissue will be seen crossing each other at nearly right angles, so as to have more or less regular quadrilateral interstices. One series of these fibres is circular, the other longitudinal: they occur in alternate layers, which commence and end with the circular. Each layer is distinct, as are also the individual bundles composing it. Upon examining prepared vertical sections of the skin, with a power of about 200 linear, and by transmitted light, we find, 1st, the germinal membrane and its epithelium; 2nd, a layer of reticulated fibrous tissue, containing the granular pigment in its meshes; 3rd, from fourteen to eighteen rolls or bundles of fibrous tissue, running nearly parallel to the surface of the skin, traversed vertically by the wavy tubes of the follicles, and by certain arctuous bands, which proceed inwards from the areolar tissue beneath the germinal membrane, pass round the innermost fibrous bundle, and become firmly connected with the arctuous bands of other layers: they are composed of elastic fibrous tissue, and in their progress upwards give off subsidiary bands, which pass between the individual bundles, and become connected with other off-sets from different parts.

April 26.—GEORGE BUSK, Esq., President, in the chair.

A paper was read by John Quekett, Esq., 'On the Value of the Microscope in the determination of Minute Animal Structures of a Doubtful Nature.'

The author, after alluding to the number of highly interesting and valuable facts in Natural History which are daily revealed by the microscope, went on to state, that even zoological classification, which in early times was based upon certain distinctions and peculiarities in external form, had principally now begun to take a higher stand: in one order of animals the nervous system, in others the digestive, in others the minute structure of the external or internal skeleton, form at the present time the best grounds for their classification; and often one and the same material chemically is so moulded into an infinity of forms, and each form so perfectly characteristic of the genus, or sometimes of the species of animals, that a mere microscopic examination only is required to identify them. The force of this argument is exemplified by the structures known as hair or wool. The author then stated, that early in the year 1847, through the instrumentality of Sir Benjamin Brodie, he received from Albert Way, Esq., a gentleman so well known in archæological science, a portion of skin supposed to be human, which had been taken from underneath some of the ornamental iron-work of one of the doors of Worcester Cathedral, with a request that he would favour him with an opinion as to whether it were human skin or not, as a tradition existed in Worcester that a man—having been caught in the act of committing sacrilege—was flayed, and his skin nailed upon the church-door, as a terror to the sacrilegious. On

this portion of skin the author succeeded in finding two hairs, which, from their well-known characters, as compared with those of the hair of other animals, he was at once enabled to pronounce to be human. Shortly after this he received from Mr. Way another portion of skin, said to be that of a Danish pirate, which had been taken from the church-door of Hadstock, in Essex. On this the author found many hairs, all of which he ascertained to be human. And on the 31st of August last a third specimen was received from Mr. Way, that had been taken from the church-door of Copford, also in Essex: this specimen was the largest of the three, and on it were very many dark hairs, which were clearly ascertained also to be human. The author then mentioned that the rector of Hadstock, from the door of whose church the second specimen was procured, had obtained from a microscopist of some eminence an opinion which entirely coincided with his. In conclusion, the author dwelt upon the great value of the microscope in these investigations, and stated how wonderful it is that characters so minute should exist in hairs, even after their exposure to the atmosphere for several centuries, and which proved the fact that of all the tissues of the animal body, save the osseous, the corneous or hairy tissue is the most durable.—*J. S. Bowerbank.*

Fondness of the Dog.—The strong feelings of the dog, as displayed in the exercise of all the capabilities which he (though in a very small degree) is gifted with, in common with men, has engrossed the attention of all naturalists. I mean such qualities as affection, fidelity, &c.; and the existence of these powers, reciprocally, between animals, naturally opposed to each other, is the subject of my present paper. In Priscilla Wakefield's 'Instinct Displayed,' an instance is given of the extraordinary influence Mr. Capel Loft had over a terrier: "he broke him of his propensity to seize rabbits and worry cats, merely by the displeasure marked on his countenance, without beating him. When he was most incensed against an unfortunate cat, that happened to fall in his way, his master would snatch him up in his arms and quiet him in an instant." Now for my own illustration. A gentleman, with whom I am well acquainted, has in his possession a fine yard dog, that an agricultural gentleman from the neighbourhood of Yarmouth presented him with, because of his being unable to manage him; for no sooner was he free than the sheep-flock was the object of his search, and he chased, pursued, worried, and occasionally killed. This was a losing game, and one to the agriculturist most disadvantageous: the issue of his determination was, that "Nero" obtained a new habitation at a remote destination. The fierceness and other features of Nero's character were all well given, and a strong chain and suitable house were prepared for him: he is a large, fine-built dog, of a cross between the "bull and Newfoundland," of a colour called in Norfolk "brindy;" and though I have been acquainted with Nero for several years, I have not found him in any way inclined to be treacherous to me, though I have known him "fly" at people who ventured too near his domain; but yet I think often more in sport than with wicked purpose. Confinement may have materially checked his spirit, as the long imprisonment of a captive knight for ever quenches hope. Many are the runs and rambles which, under the gentle management of young ladies, he has taken; but, with an occasional desertion, he has ever conducted himself with becoming deportment.

Among the chief traits of Nero's character is his affection. When our footman used to be off the premises — as oft he was — then how long and wailful a lamentation did the poor dog send forth ! It appeared that he had a more than common instinct to know his friend was away ; for the restless agitation of the beast, his whine of agony and wail of sorrow, were more intense and acute than the inward pangs of many professed friends at parting !! When first I witnessed this touching proof of his attachment, and the almost human method of displaying it, I took to my heart's memories a love for that dog, though (to confess a weakness of mine) I never felt a very strong partiality for the canine race. The family had, for the amusement of the children, a dear little kitten, so black and velvety that "Tinker" was his undivided cognomen ; and a pet he was, and yet is. "Nelly," Tinker's mamma, had continued (being an old-established housekeeper of nearly ten years) to hold her high station, which she had enjoyed before Nero's appearance ; and often in her peripatetic rambles she took a survey of Nero's abode, stopped and examined, and wondered "who or what" the new visitant could be,—so to me did her actions imply. Well, in time Nero ventured to look at her ; then by degrees he lengthened his chain ; at last he stood out full length ; and yet, during these manœuvres, Nelly stood like an ancient dame in her silks, unmoved, as one who was not to be put down or deprived of her ancient rights. Let me tell you that an intimacy sprung up between them ; and when the time arrived for Tinker's introduction to Nero, oh ! then had you, with me (as often since I have), seen the dog's fondness, shown so endearingly and delightedly ! such barkings, such springings as far as his chain would permit, such rubbing of his head against the kitten's soft coat, such playfulness and tenderness, as though fearful of hurt, that I once more registered on my memory's tablets the love of that dog. Many are the times that I have watched them feeding from the same trencher, eating of the same food, sporting together and lying side by side, as happy as kings, and happier too ! When in the sight of Nero the servant has fondled Tinker, then how joyously has he frisked, as though the kindness were shown to himself ! The lessons which I have garnered from him are many and precious ; and to all my readers I would urge the necessity of their studying the habits of that portion of Natural History they are most in the midst of ; and with a watchful eye and observant mind, they will have cause for admiration (almost daily) that He who is our God and Father has not neglected, in his universal scheme of love, sources of gratification of a refined and elevating nature for even animals.—*G. R. Twinn.*

Ornithological and other Observations in Norfolk for the months of April and May, 1848.—Early in the spring a specimen of that singular animal the black line-worm (*Lineus longissimus*), Sowerby's Brit. Misc., was captured on the north coast of Norfolk, having become entangled in some cod-lines. As this worm is not of common occurrence on the east coast of England, and has not to our knowledge been previously noticed on the Norfolk shores, we extract from the 'Transactions of the Linnean Society' the following observations respecting its history.

"This species of *Gordius*" * (says Col. Montagu)† "is not uncommon on several

* It is called by Montagu, *Gordius marinus*.

† Trans. Linn. Soc. vii. 72.

parts of the south coast of Devonshire, where it is by some of the fishermen known by the very applicable name given to it in the 'History of Cornwall.'* It is indeed of so prodigious a length that it is impossible to fix any bounds; some of the fishermen say thirty yards,—but perhaps as many feet is the utmost: those specimens which have come under our inspection did not appear to exceed twenty feet, and more commonly from eight to fourteen or fifteen.

"The largest are taken by dredging in old bivalve shells, but are sometimes found under stones at low water, always coiled or contorted in the most complicated manner: those which we have kept in sea water never attempted to extend themselves, but confined their motion wholly to contortion."

A specimen of this worm having been taken by Mr. Davies, † was kept by him alive for a fortnight in a dish of sea water. "It partook" (says this gentleman) "in a great measure of the nature of the leech, and seemed in some degree amphibious, as it frequently in part left the water, and to the length of a foot or two, or more, extended itself along the edge of the dish, and the table on which the dish was placed.

"In the night I always found it coiled in a more lax and diffuse manner, covering nearly the whole dish; but on the approach of a candle it seemed affected, and inclined to contract itself; so that, although I could not see that it had eyes, I evidently discerned that it was very sensible of light. It frequently by morning assumed somewhat of a spiral or screw-like form; and on one morning in particular, I was highly gratified in finding it almost perfectly and closely spiral from end to end. I was forcibly struck with this appearance, as it seemed to suggest to me the solution of a difficulty which perplexed me much, concerning the manner how such a wonderfully soft, delicate, and seemingly unmanageable length of body, could possibly move itself from one place to another. But from the moment when I observed this, I became perfectly at ease with regard to that particular, being convinced that this must be the state which the creature assumes when disposed to change its station; not only as thus it is contracted with regard to length into the most compact size which its make is susceptible of, but likewise that when so modified every spire or volution, by a distinct impulse exerted in an appropriate manner, will assist in the act of progression and of shifting forward the whole of its amazing length at nearly the same instant.

"Having thus attended to this remarkable animal for a fortnight, giving it daily a fresh supply of sea water, I put it into a bottle, which by-the-bye, though the bottle was wide-mouthed, I effected with no little trouble, owing to its facility of extending and contracting itself, and likewise its being so slippery from the quantity of mucus with which it abounds. When, however, this was done, I poured on it some spirits; it was convulsed and greatly contracted with regard to length, and consequently much enlarged in thickness, though neither nearly to that degree which I had often observed when it was alive; and in an instant, to my great surprise, it projected, from the emarginate part of the front, a proboscis which was eight inches in length. It is very strange that during the space of time above stated, and the various treatment which the creature had experienced, as well as the different attitudes and states I had seen it in, it never in the least exhibited this part of itself till in its dying convulsion."

This specimen was found by Mr. Davies to measure after death twenty-two feet

* Sea long worm. Borlase's 'History of Cornwall.'

† 'Transactions of the Linnæan Society,' ii. 292.

in length, and he believes that when alive it might have been extended to *four* times that length, and that the statement of the Devonshire fishermen to Col. Montagu was therefore not improbably correct. With respect to our Norfolk specimen, part of it only came into the hands of our informant, as the animal, upon being taken from the line with which it was entangled, either was broken or broke itself into several short pieces, some of which, and amongst them unfortunately the head, could not be found. Of the length of these parts when alive we can only say, in the words of our informant, that they were "*any length*." The separate pieces retained the power of motion for a day or two, although kept out of water. We much regret that, owing to the loss of the head, we have been unable to verify the existence of the curious proboscis mentioned by Mr. Davies; and it is unfortunate that that gentleman did not, by dissection of the part in question, endeavour to throw some light upon so singular a structure. Perhaps some of your correspondents can give further information upon the subject.

The colour of this worm is stated, both by Montagu and Davies, to be rufous brown, occasionally slightly varying, and our specimen agrees with this description: Montagu also says that it has five faint longitudinal lines, of a paler colour than the rest of the body.

A fine hoopoe was killed at Ormesby about the 2nd of April; and shortly afterwards a red-necked grebe, in breeding plumage, was procured near Yarmouth: another specimen of the latter bird, in similar plumage, occurred at Scottow on the 22nd.

On the 4th of April a cormorant, in breeding plumage, was shot at Herringfleet.

On the evening of the 11th of April a man placed a bow-net by the side of an osier carr, at the mouth of a ditch running into the river Yare, at Cringleford, with the view of catching pike, which often ascend such ditches at this season for the purpose of spawning. On taking up the net on the following morning, it was found to contain a male and female otter, both of which were drowned. The animals appeared to be about twelve months old; and, from the fact that their stomachs were empty, it is probable that they were caught in the act of leaving the osier carr for their night's fishing.

On the 12th of April an adult male osprey was shot at Hickling; and on the 19th of May another adult osprey, which we believe was a female, was killed at Horsey.

Many wild fowl remained late this year; wigeons, pochards and tufted ducks being observed after the middle of April.

On the 2nd of May a woodcock's nest, containing four young, was found at Rainham, near Fakenham.

About the 9th of May three specimens of the wood sandpiper occurred near Yarmouth: about the 15th a marsh harrier was caught at Woodbastwick, in a steel trap, which had been baited with an *egg*, for the purpose of catching a crow.

A full-grown squirrel was caught at Hethersett, in May, by being chased into a cottage by a cat.

It is said that an eagle *with a white head* and a white tail* was seen more than once near Yarmouth, about the 19th of May, but could not be procured.—*J. H. Gurney, W. R. Fisher; June, 1848.*

* This is *not* the eagle respecting which I made a mistake a few months ago (see Zool. 1966, 2018); but if the bird, the appearance of which we now record, really was the bald eagle, we have a singular illustration of the saying that "coming events cast their shadows before."—*W. R. F.*

Provincial Names of Birds.—Your correspondent, Mr. Evans, has favoured the readers of the 'Zoologist' (Zool. 2136) with a list of the names under which various birds are known in Leicestershire. Such lists are not without their use, as when an ornithologist changes his locality it is some time before he learns to what birds the observations of his rustic friends are intended to apply: perhaps, therefore, you may find room for a short list of the names by which various common birds are known in Norfolk. I shall, however, leave those of the shore and sea birds to the pen of my friend Mr. Dowell, who is, as I know, preparing a list of those found near Blakeney. The kestrel usually changes names with the sparrow hawk, or two species are made of it; the male being the 'kastril' (the more correct pronunciation of the name retained here), the female and young the 'sparrow hawk.' The marsh harrier is the only 'buz-zard' commonly known, the true buzzard being rare and the harrier becoming so. The jackdaw, though known by that name generally now, was anciently, as appears by the Skeyton parish-books, called the 'caddaw.' The 'hayjack' comprises, I fancy, *Curruca hortensis* and *cinerea*, while the blackcap is the 'black-headed hayjack.' The spotted flycatcher is the 'wall-bird,' so named from the place by which its nest is usually found. The redstart bears the equivalent name of the 'fretail.' The whinchat is the 'furze chuck,' I believe; but I am not certain to which of the two, or whether to both the stonechat and whinchat, this is applied. The sedge warbler is the 'reed-bird.' The *Parus major* and *cæruleus* are both known by the name of 'pick-cheese,' while the *P. caudatus* is the 'pudding-poke.' *Sylvia Trochilus* is the 'oven-bird,' so called, like the preceding, from the shape of its nest. The bearded titmouse is the 'reed pheasant,' and indeed with its long graduated tail it is not unlike a miniature pheasant. The yellow hammer is named, from the markings of its eggs, the 'writing lark,' or rather I should say the nest is called a writing lark's nest, by bird-nesting boys, without taking the trouble to find out the bird to which it belongs. The chaffinch is of course the 'spink.' The goldfinch is known, by the natives of the south of Norfolk, by a much more honourable title than it has received in Leicestershire; it is the 'King Harry,' from its beautiful crown: hereabouts it is usually the 'draw-water,' from the tricks it is taught when tamed. The green woodpecker is the 'whet-tell' or 'wet-wall.' The creeper is the 'tree creeper,' and the nuthatch the 'nut-jobber.' The wryneck is the 'cuckoo's leader' and 'snake-bird.' The swift is known by the same name as in Leicestershire; it is the 'devilng:' if you were to ask here whether there were any swifts about, you would be told, "Yes, plenty in the clay-pits:" the only creature known by that name is the water-est. The only 'bustards' now left are the *Œdicnemus crepitans*, which are very generally known by that name. The heron retains its old English name of the 'heronshaw,' or 'hernshe' as it is pronounced. Here is a list of a few names, some of which I suspect are not confined to this county; but though I am a native of it, I am still occasionally puzzled by some name decidedly new to ornithology, and many more doubtless remain to be recorded.—*H. T. Frere; Blofield, June 10, 1848.*

Labelling Eggs of Birds.—Allow me to thank you for the notice (Zool. 2132) of the 'Catalogue of Eggs' you were kind enough to insert in the last number of the 'Zoologist.' As my only object is to promote, even in a trifling degree, the study of a branch of Natural History which daily gains additional interest, you will perhaps allow me to add a few remarks in further explanation of my "machine." Had "the shovel" (as you very appropriately call labels) really grown old in the service, there would be no room for improvement; and I, for one, should never be so much wanting

in gratitude as to wish to throw it aside, like a useless piece of old iron. On the contrary, I find labels *indispensable*, in their proper place, which is, to be affixed not to the *eggs*, but to the *compartments* made in the cabinet drawers for the reception of each species of eggs. As regards *labelling the eggs* of a collection, I confess myself to have utterly failed in my repeated efforts to reconcile a label one inch or more in length with an egg less than half that size; and I still doubt whether any one has yet found the secret of making labels fit in all cases the eggs for which they are intended. A label, whether used as a swathing-band around an egg, or fixed on to it in its length, either effectually spoils the look of many eggs, or envelopes the smaller ones altogether: so that a drawer containing the eggs of the *Sylviæ*, *Fringillæ*, and other small birds, thus treated, would present a very singular appearance: whereas if the *compartments* be *labelled*, and the *eggs* be *ticketted* only, the ticket, being affixed to the under side of the egg, is not seen; and the eggs look, when placed in their several compartments, previously labelled and made ready for them, exactly as they did in the nest in which they were laid. After several attempts at different arrangements, I have found that the eggs of all the British birds may be conveniently contained in a cabinet of twelve drawers. Each drawer measures 18 inches in length, 16 inches in width, and 4 inches in depth, in the clear, and is divided into a number of compartments, which vary in their dimension according to the number and size of the eggs laid by the species of birds to be contained in the drawer; *e. g.*, drawer 1 contains the *Rapaces Diurnæ*, and is divided into twenty-four compartments; drawer 3, in which are arranged the *Insectivoræ*, is divided into fifty-eight compartments; drawer 9, for some of the ducks, into sixteen such divisions; and so on with the rest. Each *drawer* then is labelled inside with the name of the *order* or *orders* to be contained in it; each *compartment* is labelled with the name of the *species* for which it is intended; and if it be the first species of the genus, the compartment bears also the name and number of the *genus*, printed in larger letters than the name of the species; and each *egg* is *ticketted* and numbered, and thus secured against the possibility of its being mistaken for some other species, by being accidentally mixed up with other eggs. The above method of arranging a collection has proved, and proves daily, to be the most convenient, both for study and for the appearance it presents to the eye. The compartments being lined with the whitest cotton wool, prevents the eggs from getting injured by a jerk of the drawer, and sets off their colour to the best advantage. In fact, the difficulty lies not in working so simple a "machine," but, as I find it at least, in getting "fuel" for it: I mean, in obtaining well-authenticated specimens, which may be ticketted in confidence, and then placed in the "nests" previously labelled and made ready for them. In conclusion, I beg leave to add that the round paper tickets alluded to in the Introduction to the Catalogue, which measure one, two, or three eighths of an inch in diameter, may be made by thousands in less than an hour's time, with a *patent screw puncheon*. Specimens of these tickets may be had gratis, by applying either to Mr. Van Voorst or to myself.—*S. C. Malan; Broadwindsor, June 15, 1848.*

[I have sincere pleasure in printing these observations: I trust that this act, as well as my reprinting (Zool. 2133) all that the author has written in favour of his project, will show that I am guided by the spirit of fairness alone.—*E. N.*]

Some Notes on the Birds of Shetland.—We went out very early in the morning of the 13th of May, intending to go to some of the outer islands in search of eider ducks, &c., with a light breeze against us, but as we proceeded it kept increasing, and the sea getting up very fast, by the time we got half-way we thought it prudent to turn

back, as it began to rain very heavily, and was blowing a half a gale of wind : however, we rowed under the lee of a little island, and waited awhile to see if it would moderate, but it still continued to rain and blow : while we lay here we shot three purple sandpipers, nearly in perfect summer dress. As we found it was not likely to get any better, we set our sail to return home ; by this time we were as wet as the rain could make us : when we got within two miles of home we saw some singular-looking birds flying towards us, right ahead of the boat ; they appeared in the distance like small herons, with their legs stuck out behind them ; but as we were going at a rapid rate before the wind, they soon went over our heads. Several of them were quite within gun-shot ; they were Buffon's skua (*Lestris parasiticus*) : there were ten in number, and some fine long-tailed ones amongst them. I was very glad to see them, but very mortified that I could not shoot them ; for I had just tried the large gun at a cormorant a short time before, and it would not go off, having got wet : the other two guns had refused before. I intend to go out to some of the headlands where the kittiwakes are congregating together to breed, and then perhaps I may fall in with some of them. My reason for mentioning these in particular is because I never saw any either in Orkney or Shetland on my former visits, and this is the first time I have seen them during my residence here. I have noticed the following since I came to reside here, which are not mentioned in my ' Guide.'

1843, May 8. Observed seven or eight Canada geese flying in a southerly direction.

„ „ 26. Observed a large willow wren in my garden.

„ „ 28. Observed a whitethroat in my garden.

1844, Feb. 20. Shot a woodlark close to my house.

„ May 20. Shot two purple sandpipers (male and female) in summer plumage, on the island of Hoy, at the mouth of Weesdale Voo.

1845, June. Took a nest containing seven eggs of the garganey teal.

„ Oct. 14. Observed a great spotted woodpecker.

„ „ 16. Shot a great spotted woodpecker.

1846, March. Shot a common redstart in my garden.

„ Apr. 20. Shot a king drake out of a pair, at the mouth of Weesdale Voo.

—Robert Dunn ; Helister, near Weesdale, Shetland Isles, May 15, 1848.

Note on an Egg of the Blackbird (*Turdus merula*).—I have this year taken an egg from a nest which had the black spots at the smaller end.—J. B. Ellman ; Battel, June, 1848.

Is the Sparrow (*Fringilla domestica*) more useful or injurious to the Farmer ?—A friend of mine the other day requested me to write to you, asking to be informed if sparrows do more harm or good to agriculturists ? He is himself a farmer, and has not decided whether he should kill the sparrows about his farm or not.—E. Peacock ; Messingham, Kirton Lindsey, Lincolnshire, June, 1848.

[I must leave this repeatedly-mooted question in the hands of my correspondents.—E. N.]

Nesting of the Siskin (*Fringilla spinus*) near Durham—I noticed a pair or two of siskins about our gardens and plantations all this spring (1848), and having observed them later than usual I thought they might breed with us. About the 21st of April I observed the male bird singing on the top of a tall spruce fir. I had a great desire to find the nest, and searched diligently after it for several days, but without success. At length, perceiving that the male invariably went towards some spruce firs in

another part of the wood, I followed him, and on the 8th of May, 1848, had the pleasure of finding the nest near the top of a tall spruce fir: its size was nearly the same as that of the redpole, and the materials are also similar: it contained four eggs, of about the same size as those of the goldfinch.—*J. Dale, in a letter to W. Proctor, of the Durham University Museum.*

Rooks Building.—The rooks are certainly a punctual people in their building, and, no doubt, in their other operations. But I was not aware, till I read Mr. Lawson's note (Zool. 2145), that they were ever supposed to be *exact to a day*. The following dates, accurately noted down by myself, record the day of the month on which the rooks were observed to begin carrying sticks for building for several years past. These dates, I should observe, relate solely to the rooks on the premises here; and I mention this, because I have reason to think that in some other places in this neighbourhood they commence building rather earlier.

1831.	Rooks began to build	March 9.
1832.	Do.	„ 8.
1833.	Do.	„ 9.
1834.	Do.	„ 10.
1835.	Do.	„ 10.
1836.	Not recorded.	
1837.	Rooks began to build	March 9.
1838.	Do.	„ 11.
1839.	Do.	„ 3; but made little progress till about 13th.
1840.	Do.	„ 11.
1841.	Do.	„ 7.
1842.	Do.	„ 11.
1843.	Not recorded.	
1844.	Rooks began to build	March 10.
1845.	Do.	„ 12; severe frost.
1846.	Do.	„ 5; very busy.
1847.	Do.	„ 12.
1848.	Do.	„ 6.

It would appear from the above dates that the more general period at which rooks begin to build is from the 9th to the 12th of March.

I may perhaps raise a smile by saying that I have more than a strong suspicion that rooks have some instinctive knowledge when a tree has become unsound, and consequently unsafe, or in danger of being blown down, and that they carefully avoid occupying such trees for the purpose of nidification. The largest elm tree on the premises here—a very large and fine one—never had a rook's nest in it, within my recollection, since the rookery has been established, except that one year a late pair, that appeared to have been expelled from the rest of the community, built in one of the lower pendant branches of the head of the tree,—a rather unusual position. I am not sure that the same occurrence might not have taken place a second year; but, with these exceptions, the tree, to my surprise, was invariably unoccupied, though it appeared to be extremely well suited for the purpose, and other elms hard by were clustered with nests. I had myself long been aware that this large elm, though it was not going to die of old age, was yet, from some unknown cause or other, getting into a bad state of health; evidently its constitution was impaired; it produced but a thin spare crop of leaves, and these diminished in size, and they turned colour prematurely

in the autumn. I suspected that the trunk had become hollow, though externally it exhibited no signs of such decay; in this, however, I was mistaken. I had many thoughts, and some talk too, about applying the axe; but resolution always failed me. So the elm stood an ornamental object, from whatever quarter it might be viewed, till a gale of wind in January, two or three years ago, saved me the trouble of all further deliberation, and brought the tree to the ground with a tremendous crash. The trunk and limbs proved perfectly sound, and available as timber; but every root or fang, with the exception of one of the largest, was dead and decayed up to the surface of the ground. Now, could the rooks have been aware of the unsound and unsafe state of this elm? I can hardly help thinking that they were, and on that account avoided it. Should it be argued that it is unfair (as logicians teach us) to draw a general conclusion from a particular instance, I may mention that there are several other trees on the premises that are never occupied by rooks' nests, for no other cause, so far as I see, except that they are more or less in a decayed state, as I know them to be. I have alluded above to a late pair of rooks that built apart, and appeared to have been expelled, as it were, from the rest of the community. Something of this sort, I believe, takes place frequently in most rookeries. This season, after the generality of the nests were completed, or nearly so, I was a good deal amused by observing that a pair of rooks had taken up an entirely new position, and commenced building in a horse-chestnut tree opposite to my dressing-room window. These birds seem to work hardest early in the morning, as Mr. Lawson justly remarks, and good progress accordingly was made with the nest by the time I was getting up. Long before night, however, it was entirely demolished, whether by the lawful owners themselves out of caprice, or by plunderers from a worse motive, I will not pronounce. The next morning, by the same hour, the nest had been begun again, and again disappeared before night. This building up and pulling down was repeated for three or four days in succession; till at length the patience, I suppose, of the birds was exhausted, and they ceased from all further operations in the chestnut tree: whether they built elsewhere I am unable to say. Rooks make an astonishing litter under their nesting-trees, with the sticks, &c., which they either drop accidentally or designedly discard; and I think they rarely, if ever, condescend to alight upon the ground in order to pick up a stick which they have accidentally let fall in their passage to the nest. They will carry sticks from a considerable distance. This spring I observed a rook a good height in the air with a stick in its mouth, a good half mile at least from the nearest rookery; and from its position when I saw it, I conclude it must have brought the burden from a much greater distance. When I speak of rooks beginning to build, I would be understood to mean their actual conveyance of materials for that purpose; for long before they begin to *carry* they visit their nesting-trees, and are extremely busy about *something*,—laying their plans, we may suppose, and making their calculations, like other builders; and they seem to have a vast deal to say on these occasions, could we but understand their language. Some of the country people here have a notion that rooks make their nests higher or lower in the trees, according to the dryness or wetness of the ensuing summer. This spring, for instance, I was told by a labouring man that the rooks were building high, and that the circumstance prognosticated a dry summer. I confess I have never myself been able to perceive any material difference in this respect,—the great body of them building, as it appears to me, uniformly at about the same altitude.—*W. T. Bree; Allesley Rectory, July 6, 1848.*

Occurrence of the Hoopoe (Upupa Epops) near Sunderland.—Mr. Calvert, of Sun-

derland, a good practical naturalist, writes me to say, that while on a botanical stroll, on the 11th instant, to the above place and Ryhope, a village by the sea-shore, his attention was called by a friend to a singular bird roosting on a bush, which proved to be a fine hoopoe: it was chased away by some boys that were near; and though diligent search has been made for it, it has not been since heard of.—*Joseph Duff; Bishop's Auckland, June 19, 1848.*

Occurrence of the White Stork (Ciconia alba) near York.—A very fine specimen of the white stork, a male bird, was shot on the 18th of last May, by a small farmer on lord Wenlock's property, near the village of Riccall, about nine miles from the city of York, and came the same day into the hands of Mr. Graham, my bird-stuffer, at York, by whom it has been set up, and is now in my collection.—*W. M. E. Milner; 75, Eaton Place, July, 1848.*

Occurrence of the Black Tern (Sterna nigra), &c., near Oxford.—Two adult male specimens of the black tern were killed in Port Meadow, near Oxford, during the month of May: there are other examples from the same locality, preserved in the Ashmolean Museum. I may perhaps add that several gray shrikes (*Lanius excubitor*) were obtained in this county during the past winter.—*H. Roundell; Wells, June 10, 1848.*

Provincial Names of Birds.—Mr. Evans, in an interesting notice of the Leicestershire names of birds (Zool. 2136), remarks, that in that county the barn owl is known to the natives as a 'padge' or 'padge owl;' here, in Warwickshire, it is generally called a 'madge' or 'madge owlet.' 'Madge,' too, I may remark, is, so to say, the *vocative* case of owl, just as 'puss' is of cat. The great and lesser spotted woodpecker, which, with Mr. Evans, I regret to say are every year becoming less frequent, are known by the most appropriate name of 'pump-borer,' a name derived, no doubt, from the similarity of the extraordinary sound made by the bird in the spring to that of the boring of a pump-tree with a large auger. Herons are not only very commonly called 'cranes' (as rooks are called 'crows'*) but also 'moll-herons,' or rather 'moll-yerns.' In Warwickshire, as elsewhere, the swift is a 'jack squeeler,' the bullfinch a 'nope,' the chaffinch a 'piefinch,' the redstart a 'firetail,' or 'firytail,' and the wryneck the 'cuckoo mate.' The genus titmouse is, for the most part, lumped together under one common denomination of 'tom-tit.' The long-tailed tit, however, has its own distinctive appellation, and besides bearing the name of 'miller's thumb,' is also called a 'bombarrel' or 'bumbarrel,' the derivation of which name I will not pretend to suggest.† A whole host of our little summer birds of passage—whitethroats, willow-wrens, &c.—frequently pass indiscriminately under the name of 'chates' or 'chait's.' The country people here call the great crested grebe 'hornigull diver.' Within the last half year I have been amused at hearing woodcocks termed 'woodsuckers,'—by no means an inappropriate name; but the person who used this name was not, I believe,

* In the north of England, I am informed that rooks are called 'crows,' and the carrion crow a 'daupe' or 'dawp.'

† It has just occurred to me, since the above was written, that this name may have arisen from a fanciful resemblance which the nest of the bird, with its little round hole for an entrance, bears to a barrel with the bung-hole left open; in which case the name, I suppose, was originally 'bungbarrel,' softened down to 'bumbarrel' for euphony's sake; but this is mere guess-work on my part.

a native of this part of the country, but had migrated from Norfolk. I have thus taken Mr. Evans's hint, and endeavoured to contribute my mite to the "ornithological vocabulary" of this neighbourhood. If other readers of the 'Zoologist,' residing in distant parts of the country, would follow the example, no doubt they might add largely to our knowledge of provincial nomenclature, and we should hear of names strange sounding and hitherto unknown to Warwickshire ears.—*W. T. Bree ; Allesley Rectory, July 6, 1848.*

The Great Sea-Serpent.—I have waited anxiously to see whether any more competent person than myself would offer any observation upon the statement of Captain Woodward, published in the March number of the 'Zoologist,' relating to "the great sea-serpent." As no one has done so, I beg to offer you the following. In a note which you added to this statement, you say, "The foregoing statement was formally signed and sworn to at Hingham, by Captain Woodward, on the 12th of May." What 12th of May? you should have told your readers. Now, evidence given upon oath is generally considered as conclusive, except where the party swearing is known to be unworthy of credit, or the evidence given is not consistent with itself. Of Captain Woodward I know nothing; I never heard of him till I read the 'Zoologist' for last March. It is, therefore, upon the latter ground that I venture to attack his statement, and I do so because in a disputed question it is necessary to throw aside all evidence that will not stand the strictest scrutiny. Capt. Woodward tells us nothing of his whereabouts, except that he was sailing from Penobscot to Hingham, steering W.N.W., nor of the date when he says he saw the serpent, except that it was on "Sunday last, at 2 p. m." This is not sufficiently accurate. But these are trifling points. The most extraordinary part of the statement will appear from this: Captain Woodward says the beast moved with *extreme*, or, as he afterwards expresses himself, *astonishing* rapidity; that when he fired at the monster it was *sixty feet at the most* from the bow of the ship, which appears to have been the nearest part of the vessel to the animal; that after he fired the beast advanced towards his ship; that he had caused his cannon to be reloaded and pointed at its throat,—of course while it was advancing towards his vessel,—but before he could fire his crew were seized with terror; that he tacked and got out of its way. So here we have an animal sixty feet from the ship, moving with astonishing rapidity *towards the ship*, which it appears was also moving *towards the animal*, and yet allowing time to load a cannon, point it at its throat, and afterwards to tack to get out of its way. Truly, a most accommodating serpent! But again, the animal remained five hours near the ship, allowing itself to be minutely examined, but yet no further attempt to kill the beast! And what is almost equally strange, though even the position of the ear-holes is mentioned,—such minute observation does Captain Woodward seem to have made,—yet no description is given of any scales, or anything else, to account for what is before stated, that Capt. Woodward and his crew "distinctly heard the ball and bullets strike against his body, from which they rebounded as though they had struck against a rock." It is much to be regretted that these inconsistencies did not strike you before you made public the statement in question; it is also to be regretted that no one better able than myself to point them out has undertaken to do so. But it is highly desirable, in the present state

of our ignorance upon this subject, that none but the most unexceptionable evidence should be received. Let us have "the truth, the whole truth, and nothing but the truth." I need hardly add, that in these observations I am actuated by no unfriendly feeling towards Captain Woodward: my desire is to get at the truth of the matter; and I should hail with delight the day when one of these monsters of the deep, whatever they may be (for some animal with which we are unacquainted has, I firmly believe, been seen), is brought to our shores and lodged in one of our museums, to be at once the wonder and admiration of naturalists.—*W. W. Cooper; Claines, Worcester, June 2, 1848.*

'*Fish in Rivers and Streams: a Treatise on the Production and Management of Fish in Fresh Waters, by Artificial Spawning, Breeding and Rearing: showing also the cause of the Depletion of all Rivers and Streams.* By GOTTLIEB BOCCIUS.' London: Van Voorst. 1848.

[The ample title of this little work sets forth very truthfully the subject-matter of its pages. Mr. Boccius is already favorably known to the preservers of fish as the author of a 'Treatise on the Management of Fresh-water Fish, with a view to making them a source of Profit to Landed Proprietors;' and the present pamphlet follows up the subject by detailing an artificial mode of procuring fry. The following quotations will I think be found highly interesting.—*E. N.*]

"The main cause why all fresh-water streams become sterile in the end, if not carefully tended, is simple enough; namely, all the smaller streams form the sewers of the adjacent country, and fall into the larger rivers, and the latter again act as the sewers of the towns and of the kingdom, and are carriers of their congregated impurities finally to the sea. The increasing population of human beings charges the rivers every day with more and more foul matters, the refuse of towns and the agrarian districts passing into them; and hence the destruction of the spawn, egg, or ova of fish, but not of the fish when once brought into life. One cause of this I shall explain chemically. Water is composed of one volume of oxygen gas and two volumes of hydrogen gas. No life can be sustained without oxygen, let it be animal or vegetable: consequently, when water becomes thickened by other matters, a new compound is introduced, which produces a new chemical action; and this is the cause why all rivers and streams eventually become barren: for the following is the result of such a condition of waters, which it is an abuse of language any longer to call fresh. The egg of a fish, in production, differs from that of other animals, as the absorption of the spermatic fluids does not take place till it has passed from the parent, and is then left on its bed, hill, or weed, according to the description of the fish, until the period of incubation has arrived; but in the meantime, should the water become foul and change its character, then the alluvial deposit in the water settles down upon the pedicle or neck of the egg, hermetically seals the same, and prevents the oxygen gas (the component part of water) from being absorbed and passing to the embryo, from which cause suffocation takes place, and the egg is, in the common phrase, addled. This may seem strange; but the student of the laws of Nature well knows that oxygen gas

is as absolutely necessary to life as it is the slow destroyer of all things. The destruction of the eggs of the trout, from the cause just assigned I have proved to many friends, having shown them thousands in a putrefied state on their own natural hills or breeding-grounds; whilst upon the principles I have to detail of my methods of producing fish, not a single egg is lost.”—p. 1.

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“Strange to say, however, the very cause of destruction to the fish while in embryo produces them abundance of food when once brought into life. For instance, the very mud or alluvial deposit in our rivers and streams, which is an enemy to the embryo, breeds such myriads of worms, larvæ and insects, that when the young fish—all dangers overcome—find their way into it at last, they have no labour to procure food, and increase rapidly in size as a consequence of the easy life they lead: for it is a well-authenticated fact, that fish which have to toil hard in hunting for their food are bony and ill-conditioned, and never fat.”—p. 6.

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“In proof of the extraordinary growth of fish when confined and regularly fed on food fit for them, I may refer to the two electric eels (*Gymnotus electricus*), now exhibiting at the Polytechnic Institution. These fish were imported six years back, and placed as objects of curiosity in the Adelaide Gallery, in the Strand, and since have become inmates of the above-named Institution. When brought to this country they weighed about one pound each; but, being confined in a very small space, and fresh warm water daily given to them, agreeable to their natural element, and regularly fed, the largest of these specimens of Gymnoti has grown to the great weight of between forty and fifty pounds, the smaller one to about forty pounds; and the cause assigned for this difference in weight is, that the one fish was by nature the most powerful of the two, and always claimed the lion’s share of food thrown to them; and it is a fact worth noticing, that the largest fish of the two has the greatest power in giving the electric shock.”—p. 7.

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“Salmon take one hundred days, trout fifty days, and many other fish forty-two days, to come forth from the egg, provided the water does not change its temperature during the period of breeding: so that it is not impossible to bring varieties of better sorts of fish from distant countries to stock our streams with, and I should say, from what I have myself experienced, with success. The temperature best adapted for spawning ranges from 53° to 56°, and at this warmth I have never found any alteration in the time I have stated, which may be relied upon as correct, and the true time in every case. Should this even temperature vary very much, then the egg, as the water loses its warmth, is sensibly retarded in its incubation. From this change of temperature I have known the egg of the trout to be delayed from fifty to seventy days; and when the fry have at last made their appearance, they have invariably been poor weaklings, and puny in precise proportion to the time lost in their retardation in the egg. After a fish of any description has burst its bounds into life, the vesicle or investing membrane, which encompassed it in embryo, still adheres to the umbilical region, and contains a small proportion of the fluid necessary to the sustenance of the then unprotected animal. This vesicle or sack is exhausted of its fluid in fourteen days in trout, and in double that time with smolts, and then drops off; and by this time Nature has taught these little creatures to hunt for their food, and to avoid danger, which they do by keeping close to the shallows. Carp and tench spawn in June, at the time when

wheat is in blossom, which will pretty well indicate the temperature of the water as well as the air. These fish spawn near the surface, and this accounts in part for the difficulty of breeding them in rivers and streams; though, when bred in ponds, and afterwards turned into rivers, they thrive fast and well, and are better as food. And here, while I am on the subject of carp, I may as well mention that the gold carp, a native of the Eastern World, cannot breed or spawn under a temperature of from 70° to 80°, but at that they will breed luxuriantly: proper care, however, must be taken, or they will devour every particle of spawn they have deposited. An instance of this voracity I have from a gentleman who kept some of these fish in a reservoir in his hot-house, but lost his brood regularly from this cause, till he placed some water-plants in the reservoir last year, and thus secured the stock. Few persons are aware of the cause of the death of these beautiful little fish when kept in the globular glasses, even where much care is bestowed upon them. It is simply this,—they become heavy in spawn, and not being able to rid themselves of the egg, for want of the assistance which plants afford in the act of parturition, inflammatory action takes place in the ovarium, mortification ensues, and death is the consequence.”—p. 12.

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“As regards salmon, if I am rightly informed by a gentleman at Gloucester, who is a proprietor of twelve miles of the river Severn, the grilse spawns in September and October; the salmon in October, November and December. The young fish issue from the egg in from 100 to 120 days, according as the warmth of the water may have varied, which at that time of the year, from cold, rain or snow, it frequently does; the process of incubation being retarded in proportion to the effects produced by the nitrous quality of snow-water, which reduces the temperature from 55° to 30°, and that in a few hours; and when a large mass of snow falls into a spring-stream, it acts like salt combined with snow, and freezes all before it. Oyster-beds for miles are sometimes from this cause totally destroyed in one night; for when this occurs all fish retire to the deeps. Some streams, from this, in conjunction with other causes, freeze upwards from their very beds in the shallows, and it is there where most fish prefer to spawn: so that every egg is directly destroyed; but, fortunately, this extreme case is not of frequent occurrence, although I have observed it in more instances than one. The ice forms on the bed of the stream, and rises upwards to the surface as the water recovers its original temperature. There are parts of the Colne where this can be observed. As grilse spawn so much earlier than salmon, being maiden fish, it follows that the produce of their spawn is much earlier ready for migration, and begin to run in April, when they are about fifteen months old. I have omitted to mention, in its proper place, the interesting fact, that the shell of the young fry of salmon adheres to the umbilical cord for nearly a calendar month, which brings the fish to 130 days from the deposit of the egg before he can hunt for his food, and the smolt is beyond a yearling before he is strong enough to take to the salt water; and when this change is made, he bids adieu to fresh-water feeding for ever. A salmon or a grilse, returning to its native river to spawn, feeds no more on what was formerly its food, though it sports with flies, and will now and then take a minnow or a lobworm. No sort of food is ever found in the maw of the salmon when captured in fresh water; but when taken at the mouths of rivers, or on the coast making towards them, the remains of small fry are frequently found among the contents of the stomach. The salmon and grilse, too, when taken at the mouth of a river, are of different flesh and flavour to those taken up-stream, the former being firm, brittle of flesh, and of large flake; but when

taken in the latter, the flesh is weedy, thin of flake, and wanting in fat, and is of course greatly affected by the large size of the roe or milt. Mr. Young, of Sutherlandshire, writing on this subject lately in a weekly publication, says, that 'each salmon, upon his second return to his native stream, will weigh from nine to sixteen pounds weight, at which period,' he says, 'the fish can be only two years old.' What may we not hope from this circumstance, if we resort to the artificial protective principle I am advocating?"—p. 21.

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"I will now recall the attention of my readers to the plan which I propose for increasing the food of man, by restoring the stock in rivers. To second the artificial spawning principle, I propose that no pots or traps shall be permitted in the salt or brack water, so that salmon in their migrations may descend their native streams unmolested; and that where weirs are positively required, they should be made upon the principle previously described, so as to be easily surmounted.

"Artificial spawning for salmon is extremely simple: all that is required is, to obtain as many female fish, or spawners, as are deemed sufficient to produce spawn enough to restock the river. One male, or milter, is able to impart the germinating principle to the eggs of a dozen full-grown females. The principal point to be attended to is, to take the female at the right time, and this is when she is working high up stream; for though some females return nearly ready to spawn, the greater number make for the springs some time before they are full-gone and ripe for parturition. You may easily know when a fish is full up and in condition to have her eggs taken from her, by looking out for the redness and protrusion of the vent; and this must be particularly attended to, or the mother may be destroyed in the operation.

"To spawn artificially, first, a clear, clean, unadulterated spring must be found, at a temperature of 54° to 56°, which can be so hemmed back as to form a good fall of water: then the boxes, of any size, according to the amount of fish required, must be placed one by another, and so arranged that the water shall pass from one to the other; for, as each box receives its spawn in succession regularly, it is essentially necessary that the flow of water shall be at the command of the operator. The boxes must be made water-tight, with lids to all; and the first box should be placed one or two inches higher than the second, so that the flow shall fall into each box in regular succession, and form an artificial ripple, by which the egg is affected on the artificial hill in exactly the same way as on its natural one. On sunny days it is advisable to open the lids, and let the rays of light pass to them; for though the egg is buried in the shingle, it is not at such a depth but that light affects it, and that sensibly. The use of lids to the spawn-boxes is to prevent water-fowl and herons from pecculation, and keep the prying curiosity of individuals from disturbing the eggs, which is pretty sure to end in their becoming addled. The boxes being water-tight, the size I recommend should be about four feet long to from twelve to eighteen inches broad and nine inches deep. You then charge them with shingle, or very coarse, well-washed gravel, divested of all sand, to about six inches deep, which will leave a flow of water over the shingle of about two inches. The end of each box falling into the succeeding one must have an aperture left for the water, which, with the help of a small flange, is shot into the next, on the principle of a weir, so that the end of each box would be but eight inches deep; and by these means box after box will be filled with succession spawn, according to the take of the fish as they ascend for spawning.

"The small fish are the first to spawn, the larger ascend later; but it is always

advisable to obtain, if possible, a young male and an old female, as the brood are always the finest—to which subject I shall soon allude more at length. The last box of all in these artificial spawning-beds, or hills, must differ from the spawning-boxes in being three times as broad, to form an eddy, and deeper by three or four inches; and in this, which is the receiving-box for the brood, less shingle or gravel should be placed, that there may be the more room for water. At the end of this box a perforated zinc plate is to be placed, of the width and immediately opposite to the flow from the preceding spawn-box next to it: so that the water, being prevented from passing off too freely, forms an eddy in the back part of the same; and it is into this box that the brood will descend as soon as the egg-shell has dropped from their bodies. Here all the young fry are easily and safely captured, where, if any other system were adopted, thousands would be destroyed, from the extremely fragile and tender nature of their frames, to which a bruise, however slight, is fatal; and therefore, in removing them from the artificial bed to the nursery-stream, great care must be taken, or thousands will be destroyed. Here, in this nursery, they remain undisturbed for the time necessary to bring them up, which is from fifteen to eighteen months, and then they may be turned into the river. If the brood is salmon, they depart of themselves, if the barrier to the nursery be removed; if trout, or some other brood, it is best to take them and transfer them to different parts of the fishery. By this fostering system, we know to a certainty what stock we have in hand; and were this plan diligently and annually followed out, we could reclaim all the rivers and streams in the United Kingdom.

“Six years have I successfully carried out this arrangement with trout in a fishery not far from London, which is now the richest stream in the South of England. The principle of artificial spawning I have been acquainted with as far back as 1815; and I rely so confidently on the results which would ensue were it carried out, that I give my experience as data to go upon, and now proceed with the practical part of the subject. Premising the spring of water is found, the boxes in order, and the yearling brook arranged,—and this must be particularly attended to, as it affords the main or chief protection to the brood,—then, in the early part of October, you begin to drag for the grilse, which are ready to spawn. Presuming, therefore, that you have taken a spawner or milter in or near the proper state, to be certain of this the vent must be examined, and upon its appearing of a pear-shaped form, protruding and red, it may be considered in a proper condition for expressing the eggs and milt. If they are not in this state, or fairly up, on no account undertake the operation, as in so doing some of the soft internal parts may be ruptured and the fish destroyed, whilst the eggs untimely taken would be useless. In case the fish are not forward enough, they should be kept in tanks in the river for a few days, for at this time they do not feed. Should the fish be all right, take a large earthenware pan, with about two quarts of the spring water at bottom, and, holding the female fish up by the gill-covers, draw your hand downwards from the pectoral fins to the anal point. This must not be done roughly, but with sufficient force to expel the eggs from the ovarium into the pan. The same process is then to be applied to the milter immediately afterwards, rather nearer the vent, the whole milt not being ready at one time; but it is not necessary to obtain a large quantity of the vivifying fluid from him, as a very little of it diluted with water is enough for thousands of eggs. I have known the spawner, when perfectly to her time, shoot all her eggs upon merely holding her up; but this I attributed to fear. On blending the milt with the spawn, a very interesting change takes

place in the egg. Before the fluid of the milter is added, all the eggs are of a very brilliant reddish yellow; the instant it is blended, the outer cuticle of the egg becomes opaque and lustreless. As soon as the milt is expressed in the water with the eggs, the whole must be agitated with the hand for about a minute, and then the operation is completed. You may now place the eggs upon the shingle, taking great care, however, that they do not lay one upon another, and cover them with fresh shingle, two inches deep, letting the spring water flow freely over them; and in a hundred days you have the fry."—p. 29.

"*Description of a Species of Newt.*"—The paper thus headed in the last number of the 'Zoologist' (Zool. 2149) must be interesting to those persons who have paid particular attention to these reptiles. The remarkable characters of this new species are so well recorded by Mr. Wolley, the author of the paper, that there is no difficulty in distinguishing it from its near relatives. It is not uncommon in this neighbourhood. I have for several years taken as many specimens as I wished, in March, April, and the early part of May. In May, 1845, I sent some living specimens to Professor Bell, author of the 'British Reptiles,' and the following is an extract from a note which I received from that gentleman soon after: "I thank you for your kindness in sending the newts, three of which are still living, and in good health, in a glass globe. The species is undoubtedly distinct, and I believe absolutely new, not only to this country, but to science." I have long anticipated a second edition of the 'Reptiles,' containing a notice, name, and full description of this pretty species, from the able pen of the author of that interesting work. On writing to Professor Bell about this newt, I mentioned nearly all the characters which are given in Mr. Wolley's paper. I extract the following from my communications on the subject: "You will find that it possesses abundant and evident characters, which will distinguish it from the species you have described in 'British Reptiles.' The hind feet are webbed, and the tail terminates with a thread-like process; it ends abruptly at the commencement of this filament. The colour and markings you will find very pretty, and different from those of the known species." There can be no doubt of the specific identity of the newt found about Edinburgh, so well described by Mr. Wolley, and those which I sent to Professor Bell; and I believe that the specimens mentioned in his paper as having been sent from Devonshire are those which I have mentioned above, although Bridgwater is in Somerset, not in Devon. A gentleman residing somewhere about midway between Edinburgh and Bridgwater, who has devoted a great deal of time, with much scientific attention, to the natural history of newts, is of opinion that *Lissotriton punctatus* and *L. palmipes* are one species, of different ages; and he is preparing for publication a paper on this subject. How ours, with webbed hind feet and caudal filament, with which this gentleman has lately become acquainted, will be treated, I shall be anxious to know.—*Wm. Baker; Bridgwater, July 10, 1848.*

Occurrence of the Narrow-bordered Bee Sphinx in the Highlands.—Is it generally known that this charming insect is found in the Highlands? I saw it on June 7th, in a boggy spot between Loch Katrine and Loch Lomond, hovering over the same kind of flowers that it frequents in the fens of the eastern counties; and in both localities it is accompanied by the greasy fritillary.—*John Wolley; 3, Roxburgh Terrace, Edinburgh, June 9, 1848.*

Capture of Deilephila Celerio at South Walsham.—A fine specimen of *Deilephila Celerio* was captured at South Walsham, county of Norfolk, last summer, by a lady who was ignorant of its rarity; it was, however, preserved. This was taken in a house, as was another moth believed to be of the same species, which, however, was not retained.—*H. T. Frere; Blofield, March 31, 1848.*

Capture of Ephyra orbicularia, &c., at Battel.—I have three perfect males of this rare *Geometra*, which were taken in May last year, and two in May of the present year. At the same place I found *E. omicronaria*, *porata*, *punctaria*, *trilinearia* and *pendularia*; the last in profusion.—*J. B. Ellman; Battel, June, 1848.*

Note on Chlorissa punctaria.—Among upwards of 150 specimens, I have only taken one female.—*Id.*

Note on Grammesia trilinea.—Among upwards of 100 specimens, I have only taken two males.—*Id.*

Note on Dasychira pudibunda.—I bred a female in April last which had the edge of the left anterior wing notched like a saw.—*Id.*

Capture of Agrophila sulphuralis.—Within the last ten days I have netted, in the same locality as last year, near Brandon, in Suffolk, seventy-two specimens of this hitherto rare insect. It flies about sunset, in a field of lucerne, among which the food of the larva, the small *Convolvulus*, grows in great profusion.—*J. W. Dunning; Elmwood Lodge, Leeds, July 1, 1848.*

Occurrence of the Larvæ of Lepidoptera in the Catkins of the Sallow.—Walking one day lately in Wickham Wood, I thought I would look at the catkins of the sallows, on which I had heard that the larvæ of the *Xanthiæ* fed. The greater part of the catkins had fallen, but of those remaining on the trees nearly every one had in it a caterpillar. To my surprise there were not only *Noctuæ*, but *Geometræ* and *Tortrices*. Some of them had evidently fed on the catkin itself, others had only resorted to it for shelter, in some cases attaching it to a leaf with a silken thread. I do not know at all what are the species that have these habits, but as I got a good many I hope to see, and I thought that some one else may like to try also. I also found, on the same bushes, great numbers of *Tortrix* larvæ rolled up in leaves; altogether the number on a single bush was immense: indeed I never saw so many small caterpillars as there are this year. I think it worth while to call the attention of entomologists to the ease with which *Tortrix* larvæ may be obtained from many plants: in addition to the knowledge we should get of the economy of various species, I think it very probable that many would be obtained that are now rare in collections. We know what numbers of *Peroneæ* Mr. Weaver reared, and yet he could take very few in the perfect state.—*J. W. Douglas; 19, Nelson Square, Peckham, June 8, 1848.*

Nettles attractive to Moths.—Returning from mothing a few days since, I passed by a large bed of sting-nettles, among a clump of firs, and observed several *Noctuæ* flying about. I stopped to see what insects these were, and I found the leaves of the nettles swarming with *Agrotis segetum* and *exclamationis*, *Triphæna pronuba*, *Grammesia trilinea*, *Miana strigilis*, *Xylophasia rurea*, *Leucania comma* and *impura*, *Spilo-*

soma lubricipeda, and others. I have since examined other nettles, and found them equally attractive. None of the moths were feeding, but merely running about.—*J. B. Ellman; Battel, June 17, 1848.*

Distance to which Diptera will fly in quest of Food.—Diptera being of very general diffusion, it is not often that we can fix upon any species that is not, as the subject of our observation, within the sphere it has occupied since its arrival at its ultimate state of development. I have met, however, within this week past, several instances that would lead to the belief that the range of individuals is often wider than might be at first expected, from the preference they frequently show to particular spots. I find that the flowers of the willow and the sap exuding from the trunks of trees recently felled, offer here a rallying point for most of the two-winged revellers of the district; and among the various inland species thus assembled, I have observed two which must have wandered, at the least, four miles from the coast. The species I allude to are *Cœlopa simplex* and *Scatophaga maritima*, of which I have taken one of the former; and five or six of the latter, most of which are males. Both of them, especially the first, occur in abundance under or upon sea-weed, on most parts of the coast. The *C. simplex* is fond of sweets, as it often occurs in profusion on the flowers of thistles, growing near the sea-banks. We may account for the present stretch by supposing, since there is almost a continuous wood betwixt the place of observation and the sea, that these wanderers may have had many a baiting place before they reached their *ne plus ultra!* Add to this that they had the wind in their favour. Another instance of search after food may be instanced in the *Cheiliosia mutabilis*, of which I found a single specimen in the flower of a celandine, the only one, so far as I could observe, in bloom in the glen where I met with it, which was about half a mile long. This species attaches itself by preference to the flowers of the *Ranunculi*.—*James Hardy; Penmanshiel, by Cockburnspath, Berwickshire, April 11, 1848.*

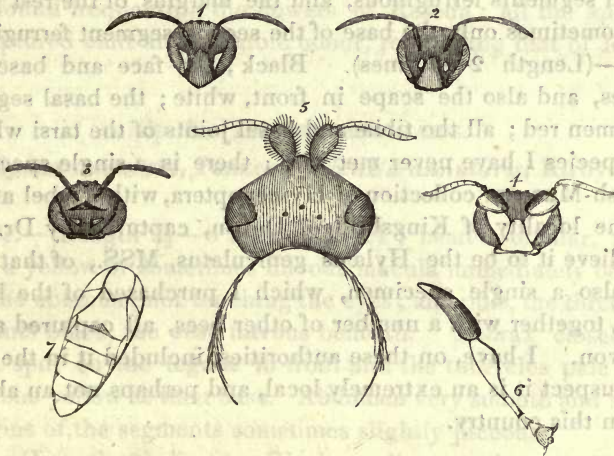
Capture of Tetanocera dorsalis.—I took a male of this pretty species among *Junci*, on the 10th instant. I have been hitherto accustomed to find it only after June or July.—*Id.*

Descriptions of the British Species of Bees belonging to the Genus Hylæus, Fab. Ent. Syst. 1793, and Prosopis of the same Author, Syst. Piezat. 1804; and also of the Genus Cilissa of Leach. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

THE bees of which this genus is composed have been considered to be parasitical by all authors who have classified or written upon them, excepting Mr. G. H. K. Thwaites, who, in the year 1841, reared several specimens of two species from bramble-sticks: what was the nature of the food stored up in the cells Mr. Thwaites did not discover: he however describes the cocoons as being arranged end to end, the upper ones producing males, which came out first, and subsequently

the females: two of each sex were produced from one stick. The food doubtless consists of some elaboration of honey, similar to that stored up by *Ceratinæ*. The fact of these bees not being furnished with any structural apparatus for conveying pollen, led to the hypothetical opinion of their parasitism, showing the utter inutility of such deductions.

In the month of June, 1846, I reared three specimens of *Hylæus signatus* from a bramble-stick: the tube at the further extremity was coated with a thin substance, resembling very much the slimy track of a snail, not separable from the remaining pith of the bramble. On opening the stick, I found what I probably mistook for the cocoon of the larva, but which I believe to have been the thin pellicle which encloses the pupa. Mr. Thwaites exposed the larvæ, so as to watch their transformations: it is to the careful observations of such naturalists that the science is indebted for invaluable records of insect development, and for clearing away all mere hypothetical conclusions.



1. Head of *Hylæus annulatus*, ♀. 2. Head of *H. annularis*, ♀. 3. Head of *H. cornutus*, ♀.
4. Head of *H. dilatatus*, ♂. 5. Head of *H. plantaris*, ♂. 6. Intermediate leg of ditto. 7. Under side
of the abdomen of ditto.

Genus.—*HYLÆUS*, *Fab.*

Prosopis, *Fab.*, *Jurine*, *Panzer*, *St. Fargeau*. *Hylæus*, *Latr.*, *Curtis*,
Smith, *Ent. Trans.* 1842. *Sphex*, *Panzer*.

Generic characters.—Head subtriangular, as wide as the thorax; the stemmata placed in a triangle on the vertex; the maxillary palpi

six-jointed; the labial palpi four-jointed. Thorax ovate, the wings having two submarginal cells. Abdomen sub-ovate. The males have the face always either entirely white or yellow, or spotted with those colours.

Sp. 1. *HYLÆUS VARIEGATUS*.

Prosopis variegata, Fab., Jurine. *Prosopis colorata*, Panz.

Female.—(Length 2—3 lines). Black; a cream-coloured line along the inner orbits of the eyes, reaching nearly to the vertex; also a spot or line of the same colour on the apical margin of the clypeus; the antennæ rufous beneath; the scape, and one or two following joints, black. Thorax rather deeply and closely punctured; the collar, the tegulæ in front, the tubercles, and a spot on each side of the scutellum at its base, cream-coloured; all the tibiæ at their base, the anterior pair in front, and the femora at their extreme apex, cream-coloured; the apical joints of the tarsi ferruginous. Abdomen, the two basal segments ferruginous, and the margins of the rest rufo-piceous; sometimes only the base of the second segment ferruginous.

Male.—(Length 2—3 lines). Black; the face and base of the mandibles, and also the scape in front, white; the basal segment of the abdomen red; all the tibiæ and basal joints of the tarsi white.

This species I have never met with: there is a single specimen in the British-Museum collection of Hymenoptera, with a label attached, giving the locality of Kingsbridge, Devon, captured by Dr. Leach, and I believe it to be the *Hylæus geniculatus*, MSS., of that author. I have also a single specimen, which I purchased of the late Mr. Pelerine, together with a number of other bees, all captured at Bideford, Devon. I have, on these authorities, included it in the British list. I suspect it is an extremely local, and perhaps not an abundant species in this country.

Sp. 2. *HYLÆUS ANNULATUS*.

Melitta annulata, Kirby. *Apis annulata*, Linn. *Prosopis annulata*, Fab. Syst. Piezat.

Female.—(Length $2\frac{1}{2}$ —3 lines). Black; head closely and finely punctured; the face has an oblong angulated yellow macula on the inner orbits of the eyes, below the base of the antennæ. Thorax closely and finely punctured; a spot on the tegulæ in front, the tubercles, and sometimes the collar laterally, pale yellow; the wings sub-

hyaline, iridescent; the legs have the posterior tibiæ pale yellow at their base, the anterior and intermediate pairs are sometimes slightly yellow at their extreme base. Abdomen oblong-ovate, very smooth and shining, and delicately punctured towards the apex.

Male.—(Length $1\frac{3}{4}$ — $2\frac{3}{4}$ lines). Black; punctured as in the female above, but the thorax very coarsely so beneath; the clypeus and inner orbits of the eyes yellow; the antennæ obscurely fulvous beneath. Thorax, in rare instances a yellow spot on the collar laterally, but generally obsolete; the anterior tibiæ more or less rufous in front; the intermediate tarsi at their base, and the posterior tibiæ and tarsi at their base, pale yellow.

It must be observed of this species, that the yellow markings are subject to great variety in the females: the spot on the tegulæ is sometimes, but rarely, wanting, sometimes wanting on the tubercles, and the spots on the face nearly obliterated; but all the varieties will be found to agree in the form of the head and in the general sculpture. This species is very generally distributed, and in the month of June may be found frequenting the flowers of Reseda: all the species on being captured emit an agreeable odour, resembling that of lemons.

Sp. 3. HYLÆUS ANNULARIS.

Sphex annulata, Panzer. *Melitta annularis*, Kirby.

Female.—(Length $2\frac{1}{2}$ —3 lines). Black; head orbicular, truncate in front, a yellow or sometimes fulvous macula immediately below the base of the antennæ, not touching the eyes; antennæ, the three or four basal joints black, the rest fulvous beneath. Thorax closely punctured; a spot on the tegulæ in front and the tubercles pale yellow; all the tibiæ yellow at their base. Abdomen very smooth and shining; the margins of the segments sometimes slightly piceous.

Male.—(Length $2\frac{1}{2}$ lines). Black; a line on the mandibles, the face, and the basal joint of the antennæ beneath, white, the rest fulvous beneath. Thorax closely punctured; the sides and the metathorax have a short white pubescence; the intermediate and posterior tibiæ at their base, and also the basal joint of their tarsi, white; the anterior tibiæ rufous in front. Abdomen as in the female.

The *H. pallidens* of Kirby's MSS. is, I think, having carefully examined the original specimen, a variety of the male. Although this species closely resembles the preceding, yet it is a good and quite distinct species: the head viewed in front is nearly round, and the yel-

low maculæ on the face of the female do not touch the eyes, but are placed a little below the base of the antennæ. The male has the face white, not, as in the same sex of "annulatus," yellow. The species is said to occur in the neighbourhood of London, but I never met with it. I once took a pair in Hampshire, and Mr. Samuel Stevens took it at Arundel. I believe it to be very local.

Sp. 4. *HYLÆUS DILATATUS*, Curtis.

Melitta dilatata, Kirby.

Male.—(Length 3 lines). Black; the face below the base of the antennæ pale yellow; the mandibles white, black at their extreme base, and ferruginous at their tips; the basal joint of the antennæ very much dilated, subquadrate, externally concave, pale yellow in front, the remaining joints fulvous beneath. Thorax closely punctured; the metathorax has a slight white pubescence; a spot on the tegulæ in front, the tubercles, and the collar laterally, pale yellow; the tibiæ and tarsi yellow; the anterior and intermediate tarsi have a black stain behind, and the posterior pair are annulated with black towards the apex. Abdomen closely and finely punctured, and clothed with fine, short, white pile, observable in certain lights.

This very distinct insect was discovered by Mr. Kirby, and has been beautifully figured by Mr. Curtis: the details which I have given of the head will serve to distinguish it from its congeners. I have some suspicion that the female which I shall next describe belongs to this male: I captured them in the same locality in Hants. Mr. Saml. Stevens took the male in Sussex. I never met with it near London. It is a very local species.

Sp. 5. *HYLÆUS CORNUTUS*, Smith, *Ent. Trans.* iv. 32.

Melitta cornuta, Kirby's MSS.

Female.—(Length $3\frac{1}{4}$ lines). Black; head closely punctured, rotundate, a stout acute tooth on each side of the clypeus, and a raised tubercle immediately below the base of the antennæ, which are testaceous beneath, excepting three or four of the basal joints, which are black; a spot on the tegulæ anteriorly, and an interrupted line on the collar, yellow; the wings sub-fuscous, palest at their apical margins; all the tibiæ yellow at their base; the claws ferruginous. Abdomen shining, entirely but delicately punctate.

I possess two specimens of this insect, captured in Hants; there is also one in the Kirbyan collection: these are all that I have seen.

Sp. 6. *HYLÆUS PLANTARIS*, *Smith, Ent. Trans.* iv. 32.

Male.—(Length 3 lines). Black; head orbiculate, closely punctate; the mandibles pubescent; the antennæ yellow, slightly stained with fulvous above, placed on a ridge or prominence in the middle of the face, closely approximating; the scape considerably dilated, pale yellow, with a black stripe behind, the margins fringed with pale hairs. Thorax, a spot on the tegulæ, and an interrupted yellow line on the collar, white; the wings fuscous, yellowish at their base; the anterior tibiæ in front, and the intermediate and posterior pairs at their base, yellow; all the tarsi pale yellow, the apical joints ferruginous; the basal joint of the intermediate tarsi much dilated. Abdomen elongate, slightly pubescent towards the apex, entirely but finely punctured; at the apical margin of the second segment beneath is a patch or cushion of yellow pubescence, clothing a depression.

This is a very distinct species, and I suspect very local. My specimens were captured some years ago on Cove Common, Hants, and although I have since searched the spot assiduously I have not again met with it. In form this insect is remarkable: the scape is considerably dilated and fringed with hair; the apical joints are of equal thickness, and much shorter than usual in this genus; the dilatation of the basal joint of the intermediate tarsi is also a striking peculiarity.

Sp. 7. *HYLÆUS PUNCTULATISSIMUS*, *Smith, Ent. Trans.* iv. 33.

Female.—(Length 3 lines). Black; head and thorax rather coarsely punctured; the inner orbits of the eyes pale yellow below the base of the antennæ. Thorax, the tegulæ anteriorly, the tubercles, and the collar laterally, pale yellow; the wings subhyaline, iridescent; all the tibiæ pale yellow at their base. Abdomen, the basal segment coarsely punctate, the remaining segments more finely so; a patch of white pubescence on the anterior margin of the basal segment laterally, frequently obliterated; the apical segments have a clothing of fine silvery pile, observable in certain lights.

Male.—(Length 3 lines). Black; the face, and a spot on the scape of the antennæ in front, yellow; the apical joints nigro-piceous beneath. Thorax coarsely punctured; the wings as in the female; a spot on the tegulæ in front, the anterior tibiæ in front, the interme-

diate and posterior pairs at their base, and also their tarsi at their base, yellow. Abdomen oblong-ovate, closely and distinctly punctured.

This species I took some years ago at Birch Wood, in Kent, since which I have not met with it.

Sp. 8. *HYLÆUS HYALINATUS*, *Smith, Ent. Trans.* iv.

Female.—(Length $2\frac{1}{4}$ lines). Black; the face has a yellow spot touching the eyes, a little below the base of the antennæ. Thorax closely punctured; a minute white spot in front of the tegulæ; wings subhyaline, splendidly iridescent; the posterior tibiæ pale yellow at their base. Abdomen ovate, smooth and shining, delicately punctured.

Male.—(Length $2\frac{1}{2}$ lines). Black; the face coarsely punctured, cream-coloured; the antennæ fulvous beneath, the two basal joints black. Thorax rather coarsely punctured, pubescent, particularly the metathorax, and beneath; a spot in front of the tegulæ, the tubercles, the anterior tibiæ in front, the intermediate and posterior pairs at their base, and all the tarsi, pale yellow; the intermediate and posterior tarsi have the apical joints black, the anterior rufous; the wings are clear hyaline and splendidly iridescent. Abdomen ovate, smooth and shining, finely pubescent, observable in certain lights.

This species was first discovered by Mr. Thwaites, who bred it from bramble-sticks. I have also taken it near London. It is not so numerous as the generality of this genus of bees.

Sp. 9. *HYLÆUS SIGNATUS*.

Prosopis signata, St. Fargeau. *Sphex signata*, Panzer. *Melitta signata*, Kirby.

Female.—(Length $3\frac{1}{2}$ lines). Black; the antennæ fulvous beneath; the scape black; the face has a fulvous line along the inner orbits of the eyes. Thorax, a yellow spot on the tegulæ and tubercles; the wings hyaline; the nervures black; the base of all the tibiæ and the anterior tibiæ in front more or less rufous. Abdomen shining, closely and finely punctured; a patch of white pubescence on the lateral margins of the basal segment; the apical segment is also pubescent.

Male.—Length 3— $3\frac{1}{2}$ lines). Black; the face pale yellow or white; the antennæ fulvous beneath. Thorax clothed at the sides and beneath with a thin, fine, short, white pubescence; the anterior tibiæ

rufous in front; the basal joint of the posterior tarsi white. The abdomen has a short, fine, silvery pile, observable in certain lights, with a patch of white pubescence on the margin of the basal segment laterally, frequently obliterated.

Var. the face of the female sometimes entirely black.

So very distinct is this species from any of the foregoing, that, aided by Mr. Kirby's excellent descriptions, it appears remarkable that St. Fargeau should have considered *annulatus*, *annularis* and *dilatata* as probable varieties of *signata*: such I am confident is not the case, as a careful examination of their sculpture alone will easily determine: the metathorax of each species is different, although the difference would be difficult to express in words, and the characters pointed out are ample for specific distinction. This is the largest species of the genus hitherto discovered in this country: the males are frequently larger than the females.

Genus.—*CILISSA*, Leach.

Andrena, Latr. *Apis*, Panzer. *Melitta*, Kirby. *Kirbya*, St. Fargeau.

Generic characters.—The labial palpi four-jointed, the maxillary palpi six-jointed. The superior wings having three submarginal cells. The antennæ of the males sub-serrate beneath. The ocelli placed in a curve on the vertex.

Of this genus we have two British species: they are very closely allied to the true bees, or those having the tongue elongate: in this genus it is sub-elongate and acute, thus forming as it were a connecting link, as Mr. Kirby observes, between the *Andrenoides* and *Panurgides*.

Sp. 1. *CILISSA HÆMORRHOIDALIS*.

Apis hæmorrhoidalis, Panzer. *Melitta chrysuræ*, Kirby. *Kirbya chrysuræ*, St. Fargeau.

Female.—(Length $5\frac{1}{2}$ —6 lines). Black; the face below the antennæ and cheeks clothed with pale fulvous pubescence, on the vertex it is black and not so dense; the clypeus coarsely punctured; the mandibles arcuate, rufo-piceous at their apex; the apical joints of the antennæ piceous beneath. Thorax clothed with pale fulvous pubescence; on the disk it is black; the tegulæ nigro-piceous; wings

sub-hyaline, with their apical margins slightly clouded; the pubescence on the legs is fulvous, the scopa on the posterior tibiæ being very bright and dense; on the basal joint of the posterior tarsi it is ferruginous, as are also the claws. Abdomen oblong-ovate; the basal segment thinly clothed with pale pubescence, the margins of the three following have a narrow white marginal fascia, frequently more or less obliterated; the apical fimbria bright fulvous.

Male.—(Length $5\frac{1}{2}$ lines). Black; the face densely clothed with bright pale fulvous pubescence; the antennæ sub-serrate beneath. Thorax clothed with pale fulvous, with a few black hairs intermixed on the disk; the wings as in the female; the legs have a similar pubescence to the thorax, but paler. Abdomen thinly clothed with pubescence of the same colour.

This species for many years was a desideratum in most cabinets, until the year 1844, when I took it in plenty at Shirley, near Croydon, in the month of August. I observed, as mentioned by Mr. Kirby, that the sexes fly in company, frequenting the flowers of the common blue-bell (*Campanula rotundifolia*). At the same time that I met with this species, it was also captured in abundance near Bristol, by Mr. Walcott.

Sp. 2. CILISSA TRICINCTA.

Apis leporina, Panzer? *Melitta tricincta*, Kirby. *Kirbya tricincta*, St. Fargeau.

Female.—(Length 5 lines). Black; the face thinly clothed with pale fulvous pubescence, that on the vertex is black; the antennæ piceous beneath, the three basal joints black. Thorax clothed with pale fulvous pubescence, on the disk it is black; the tegulæ piceous; the wings sub-hyaline, their apical margins slightly clouded; the pubescence on the legs is similar to that of the thorax; on the tarsi beneath it is ferruginous; the claws ferruginous. Abdomen ovate; the basal segment has a thin pale fulvous pubescence, its margin and that of the three following have a pale fulvous fascia; the anal fimbria black.

Male.—(Length $4\frac{1}{2}$ lines). Black; the pubescence on the face is rich fulvous; the antennæ rufo-piceous beneath; the mandibles ferruginous at their apex. Thorax clothed above with fulvous pubescence, beneath much paler, inclining to white; the pubescence on the legs is pale fulvous; the claws ferruginous; the wings as in the female. Abdomen, the three basal segments have a thin clothing of

pale fulvous pubescence ; on the apical ones it is black, observable when viewed laterally ; the margins of the basal and four following segments have fulvous fasciæ, the sixth is fringed with black, and the seventh concealed.

This is a scarce species. I never met with more than single specimens, occasionally ; of the male I took some numbers eight or ten years ago. I have taken it at Battersea, Charlton, Gravesend, and in Hampshire.

The specimens described are those in the finest condition : the pubescence of the male of this species is frequently changed to pale lemon-colour, or nearly white, as it also changes in the preceding species.

FREDERICK SMITH.

5, High Street, Newington,
June, 1848.

Appendix to F. Smith's Descriptions of British Bees. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

SPHECODES RUGOSUS, *Smith.*

Male.—(Length 5—5½ lines). Black ; the head rather wider than the thorax ; the face densely clothed with silvery white pubescence ; the joints of the antennæ much swollen or sub-moniliform. Thorax very coarsely punctured ; the metathorax rugose, truncate ; the tegulæ rufo-piceous, with a yellow spot in front ; the wings sub-fuscous, darkest at their apical margins ; the pubescence on the legs is silvery white ; the apical joints of the tarsi ferruginous. Abdomen entirely red and strongly punctured ; the margins of the segments smooth, shining and slightly depressed.

Of this species I possess two specimens, which I purchased, together with a number of British bees, of the late Mr. Pelerine. It is said to have been captured at Bideford, Devon. There is also a pair in the cabinet of the British Museum, said to have been taken at Kingsbridge, Devon, by Dr. Leach. This is the largest species found in this country, and so conspicuous an insect, that when entomologists shall have ceased to be almost entirely devoted to the collection of Lepidoptera, and those whose leisure will allow of their visiting remote districts, shall devote some portion of their time to the

investigation of other orders, then I doubt not many unexpected novelties will be met with, and probably all the species which I have placed in this Appendix may—without doubt of their being indigenous—be arranged amongst our British bees.

HALICTUS SEXCINCTUS, Latr. *Gener. Crust. et Ins.*, Walckenaer, St. Fargeau.

Andrena rufipes, Spinola. *Hylæus sexcinctus*, Fab., male. *Hylæus arbustorum*, Panz., male. Not *Melitta quadricincta*, Kirby, male, (Walckenaer).

Female.—(Length 6—8 lines). Black; the face clothed with pale fulvous pubescence; the clypeus naked and roughly punctured; the antennæ nigro-piceous beneath. Thorax thinly clothed above with pale fulvous pubescence, most sparing on the disk; the tegulæ testaceous; the wings slightly fuscous, and slightly clouded at their apical margins; the legs have a fulvous pubescence; the calcaria and apical joints of the tarsi testaceous. Abdomen, the first segment has a little pale fulvous pubescence at the base; all the segments have a continuous pale fulvous marginal fascia, between which the abdomen has a short brown-black pubescence.

Male.—(Length $4\frac{1}{2}$ —6 lines). Black; the face clothed with short pale fulvous pubescence; the apical margin of the clypeus luteous; the apex of the mandibles ferruginous; the antennæ luteous beneath; the scape yellow beneath; the terminal joints are recurved or convolute. Thorax clothed as in the female; the tegulæ luteous; the wings hyaline, slightly clouded at their apical margins; the legs pale luteous; the coxæ and trochanters brown-black. Abdomen cylindrical, elongate, not wider than the thorax; the segments have each a continuous pale fulvous marginal fascia; beneath, the margins of the segments are testaceous.

Specimens of this species are placed in the national collection of British insects, probably by Dr. Leach; but as the locality from whence they came cannot be found, I think there is reason to doubt their being indigenous, and to suppose that they were placed in the cabinet by some mistake. I shall be glad to be convinced to the contrary by the capture of so fine a species. There is a specimen of the male in the collection of Mr. Desvignes.

ANDRENA APRILINA, *Dale, MSS.*

Male.—(Length $4\frac{1}{2}$ lines). Black; the clypeus clothed with brown pubescence, with fulvous at the base of the antennæ, which are not quite so long as the head and thorax; the joints subarcuate; the apex of the mandibles ferruginous. Thorax very closely and finely punctured, clothed with fulvous pubescence, most sparing on the disk, and palest on the sides of the metathorax; the tegulæ nigro-piceous; the wings sub-hyaline, slightly clouded at their apical margins; the nervures testaceous; the pubescence on the legs fulvous, with which the posterior tibiæ are thickly clothed; the tarsi ferruginous. Abdomen oblong-ovate, shining, the margins of the segments piceous, the second and third sub-depressed; the margins of the segments are thinly fringed with fulvous pubescence; the pubescence on the apical segment is of a brown-black.

This very distinct species was transmitted to me by Mr. Dale, with the name adopted. It is, I expect, a very local species. The specimen described, and one in the British Museum, are all that I have yet seen. The female is not known.

ANDRENA EXIMIA, *Smith (Zool. 1930).*

Female.—(Length $5\frac{3}{4}$ lines). Black; the pubescence on the face and cheeks is fulvous; the antennæ nigro-piceous beneath, the apical segment piceous; the clypeus smooth in the centre, and coarsely punctured laterally; tips of the mandibles ferruginous. Thorax very finely punctured, with larger punctures intermixed; the disk naked; the sides, and metathorax laterally, clothed with fulvous pubescence; the wings sub-hyaline; the nervures rufo-piceous; the pubescence on the legs above is fuscous, beneath pale fulvous; the apical joints of the tarsi ferruginous; the floccus and scopa beneath pale fulvous, the latter fuscous above. Abdomen smooth and shining; the apical margin of the basal segment, and the second and third segments, entirely red; the apical fimbria fuscous, beneath very finely punctured.

I captured a female of this species some years ago at Darent Wood, and had considered it as an extreme variety of *A. Rosæ*, which it closely resembles; but Mr. Weir captured a series of specimens of both sexes on the 10th of April, 1846, at Pembury, Kent: they were crawling on a sand-bank, benumbed with cold. My female was captured in the beginning of May, and Mr. Heales captured the males, as

before stated, in April. I have also a male, captured at Bexley by Mr. Saml. Stevens, in April. The time of appearance alone points out a distinct species from *A. Rosæ*, which is an autumnal insect, appearing about the middle of August. The present species always has two entire segments red, *A. Rosæ* only one, and that with generally a central black stain, or varying as previously described, and being also coarsely punctured beneath; *eximia*, on the contrary, is very finely punctured. The specimens captured by Mr. Weir are in the cabinet of Mr. Desvignes, who kindly gave me a fine specimen of the male: these, and the males in Mr. Heale's cabinet, are all I have yet seen.

Genus.—AMMOBATES, *Latr., St. Fargeau.*

Generic characters.—The maxillary palpi six-jointed; the stemmata placed in triangle on the vertex; the superior wings with two sub-marginal cells.

Sp. 1. AMMOBATES BICOLOR, *St. Fargeau.*

Female.—(Length $3\frac{1}{2}$ —4 lines). Black; the face clothed with a short silvery white pubescence below the base of the antennæ. Thorax above coarsely punctured; the sides, beneath, and the metathorax laterally clothed with fine, short, white pubescence; the outer margin of the tegulæ testaceous; the wings slightly fuscous; the legs have a clothing of very short silvery white pubescence, the anterior pair rufo-testaceous; all the claws ferruginous. Abdomen, the three basal segments ferruginous; at the extreme lateral margin of the three basal segments is a small patch of silvery white pubescence, the fourth and fifth have a continuous broad fascia of the same colour; the abdomen ferruginous beneath.

There is a specimen of this beautiful insect in the British Museum, with a ticket attached, giving the locality of Leicester. I have placed it in the Appendix, but have little doubt it will prove hereafter to be an undoubted British insect; since I observed that the hand-writing on the label is the same as that on the specimen of *Macropis labiata*, since proved to be indigenous, also taken at Leicester by Dr. Leach.

OSMIA CORNUTA, Latreille.

Megilla cornuta, Spinola. *Apis cornuta*, Oliv.

Female.—(Length 5 lines). Nigro-æneous; the clypeus armed on each side with an incurved horn, obtuse at the apex; the mandibles very stout, and having an acute tooth at the apex; the face clothed with long black hair, as well as the thorax; the wings slightly fuscous. Abdomen entirely fuscous; all the tarsi beneath and the posterior tibiæ clothed with ferruginous pubescence; the claws ferruginous.

Male.—(Length 4—5 lines). Nigro-æneous; the face and head beneath clothed with long white hair, the sides with black; the antennæ as long as the head and thorax. Thorax clothed above with brownish black pubescence, beneath intermixed with pale ferruginous; all the tarsi beneath and the abdomen clothed with ferruginous pubescence.

There are both sexes of this species in the national collection at the British Museum, but no locality can be discovered. I must confess my doubts of the species being indigenous; so fine and conspicuous an insect would I think have been observed by entomologists, since it belongs to a section of bees usually abundant, although some are local. There are also specimens in the collection of Mr. J. F. Stephens, said to have been captured, I think, at Bristol.

Systropha spiralis. There is a specimen of this insect in the national collection at the British Museum, but its locality is not known: it therefore is doubtful as a British species. The same will apply to a specimen of *Melliturga clavicornis*.

ANTHOCOPIA PAPAVERIS, St. Fargeau.

Osmia papaveris, Latr.

Female.—(Length 4—4½ lines). Black, punctured; the face thinly clothed with white pubescence, thickest along the inner orbits of the eyes and on the cheeks; the antennæ a little longer than the head; the pubescence on the disk of the thorax is of a dirty white; on the sides, metathorax and beneath it is white; that on the tarsi beneath is fulvous; the claws ferruginous. Abdomen, the basal segment is clothed at the sides with long white pubescence; all the segments have a narrow white marginal fascia, the two first frequently interrupted; beneath, the pollen-brush is pale fulvous.

Male.—(Length 4 lines). Black, punctured; the head rather wider than the thorax; the face clothed with long white pubescence, or slightly stained with yellow; the scape of the antennæ large, thicker than the remaining joints, which are compressed towards the apex, sub-testaceous, and gradually tapering to the apex; the pubescence on the disk of the thorax is thin and of a dirty white; on the sides of the metathorax and beneath it is white; the tarsi ferruginous; beneath, clothed with pale fulvous pubescence; that on the tibiæ, femora, &c., is white; the tegulæ testaceous; the wings sub-fuscous, clouded at their apical margins. Abdomen, all the segments have a white marginal fascia; the margin of the sixth segment is minutely dentate in the centre, and has laterally an incurved sharp tooth or spine, the seventh entire.

There is a series of specimens of this insect in the national collection; the label attached gives the locality of Leicester. I have not seen it in any other cabinet, except that of Mr. Desvignes, and his specimens came from the British Museum: they were captured, I believe, by Dr. Leach.

Page 600, 'Zoologist.' *Nomada xanthosticta*. I have stated that there is no specimen of this insect in the Kirbyan cabinet; and I never saw one answering to the description until the autumn of 1846, when the late Rev. G. T. Rudd sent one or two to me, requesting to know if I could tell him the name of the species. I had no doubt, at first sight, that it was *Nomada xanthosticta*; the yellow tubercles, ferruginous tegulæ, and spots on the scutellum, are marked distinctive characters: one of the specimens is in my own collection. Mr. Rudd informed me that he captured them near his own house, Worsall Grange, Yarm, Yorkshire.

Page 891. *Saropoda bimaculata*. Omit the words between the inverted commas:—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."

Page 895, line 14, for *repainted* read *repointed*.

Page 1448. *Heriades truncorum*. Both sexes captured by Dr. Leach, at Kingsbridge, Devon.

Page 1743. Sp. 28, alter the name *Andrena proxima* to *A. consimilis*.

Page 1749. *Andrena bidentata* should be *Andrena tridentata*.

Halictus quadricincta. Mr. Dale sent to me a specimen for examination of the female of this species, captured in the Isle of Portland, in August, 1828, since which time he has not met with it.

With the present I conclude my papers on the British bees; and although I am aware that a much more perfect work might be produced, still I cannot but think that if every entomologist who devotes some years to the study of any particular group, were to give—in the best manner he is able—the result of his investigations, he must confer some benefit to the science; additional information must be imparted, and in many cases important additions made to the various genera treated upon.

The result of my own labours will prove to be little more than a record of my own observations, and it may hereafter become the office of some Hymenopterist to work out, in a more complete and scientific form, the monograph of our indigenous bees; but in such a case he may probably find some of the materials which I have collected useful in raising his superstructure.

To those who have not the opportunity of examining the original specimens from which Mr. Kirby drew the descriptions for his 'Monographia Apum Angliæ,' the observations which I have made upon them will, I think, prove useful. I am not aware that I have omitted anything of importance in the descriptions, which is to be found in Mr. Kirby's; but I have, in many instances, added such additional particulars as the result of my own investigations appeared to prove to be necessary, and frequently whereby a species may at once be discriminated from its congeners. The marked differences in species, when pointed out, independently of the detailed description, is, in my opinion, always desirable, as it requires great practice in working out species before these distinctive characters at once present themselves to the student in Entomology.

I have described forty-eight species either new to the British list or not previously to be found in any English work: one or two probably which are included in the Appendix may not prove to be indigenous, but as I find them in collections, they are described, in order that they may be recognized if captured again.

In conclusion, I beg to acknowledge the obligations I am under to those gentlemen who have so kindly and liberally rendered me the most valuable assistance, not only by allowing me a ready access to

their collections, but also, in many instances, by presenting me with specimens of rare, local or unique insects. To Messrs. Desvignes, Walcott, Thwaites, J. F. Stephens, Samuel Stevens, Doubleday, Dale, Waterhouse, Bowring, the Rev. W. Little, and the Rev. J. F. Dawson, I return my most sincere thanks for their kind assistance.

FREDERICK SMITH.

5, High Street, Newington,
June, 1848.

Descriptions of two Species of Trichius supposed to be British.—It appears to me that we have in this country two species of the genus *Trichius* which have hitherto been confounded; at least I am not aware that any one has decided the question, and it is with the intention of so doing that I address a few words to the readers of the 'Zoologist.' The species in question are the *Trichius fasciatus* of Fabricius and the *T. zonatus* of Schmidt. This point I think it will be desirable to determine. Both species undoubtedly exist in cabinets. All the specimens taken in Scotland are, I believe, the *T. fasciatus*; and all the specimens which I have seen of *zonatus* are from old collections. I have not been able to ascertain satisfactorily the locality of any of the specimens, or by whom they were captured. I send you short descriptive differences, whereby any one can ascertain which species he possesses; and should any one be able to give the locality of *zonatus*, and satisfactory evidence of its capture, the question will be at once decided. I have some idea that the Swansea and other West of England specimens may prove to be *zonatus*, and the northern specimens the *T. fasciatus*.

Sp. 1. *TRICHIUS ZONATUS*, Schmidt, Germ.

T. Gallicus, Dej. Cat. *T. abdominalis*, var., Schmidt, Dej. Cat.

Male.—The lateral margins of the thorax immaculate; the central segment of the abdomen transversely striated, and having two yellow maculæ; the anterior coxæ have a yellow macula in front.

Female.—The lateral margins of the thorax yellow, sometimes interrupted; the ventral segments immaculate.

The elytra in both sexes black, having the suture black, with two transverse yellow fasciæ united to a longitudinal one, which reaches to the angle of the shoulder. The base never has a transverse black band. The yellow fasciæ are nearly, or quite, of equal width.

Sp. 2. *TRICHIUS FASCIATUS*, Fab.

Male.—The anterior coxæ not maculated, nor are the ventral segments maculated.

Female.—The thorax has a lateral yellow macula.

In this species the elytra are usually entirely black at the base, sometimes interrupted, but the longitudinal fascia does not reach to the angle of the shoulder; the basal transverse yellow fascia is usually much broader than the second; the apex of

the abdomen is also generally entirely clothed with yellow hair, whereas in *T. zonatus* the centre is usually naked, or but slightly pubescent; but the yellow fascia touching the shoulder will always point out *zonatus*: *fasciatus* is also usually the largest species.—*Frederick Smith*; 5, *High Street, Newington, August 15, 1848.*

Tenacity of Life in Rhagium bifasciatum.—Sometime ago I sent you a notice of the remarkable tenacity of life in *Pissodes Pini* (Zool. 699). A still more singular instance, in a specimen of *Rhagium bifasciatum*, came under my observation last December, while staying with a friend near Alloa. I had taken a number of this species from the interior of old larch stumps, and after keeping them in strong spirits for *twenty-two hours*, I placed them on the setting-board. The next morning I was obliged to go to Edinburgh, where I was detained above a fortnight; and one of the first things which occurred to me on my return was to look at my specimens, supposing, of course, that I should find them all stiff enough, and ready to be deposited in my store-box. Imagine my surprise to find one of them (a large female) “alive and kicking,” and my wonder was not diminished when, on my releasing it from the pin, it walked as coolly (I will not say as comfortably) across the table as if nothing had happened. I have met with many notices of the tenacity of life in insects, but I think few so remarkable as this; and I should really have hesitated to record it had not my friend been present when the insect was put into and taken out of the spirits, and likewise when it took its subsequent promenade.—*R. Northmore Greville*; 33, *George Square, Edinburgh, June 26, 1848.*

Descriptions of Aphides. By F. WALKER, Esq.

Aphides on Hound's-tongue (*Cynoglossum officinale*).

APHIS CYNOGLOSSI.

The winged viviparous female. The body is pale greenish yellow and of moderate size: the crown of the head is greenish brown: the disk of the thorax above and below is dark brown: there is a row of small black spots along the back of the abdomen, and a few black dots on each side: the antennæ are black, and much longer than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-fourth of the length of the body: the legs are long and pale yellow; the tarsi, and the tips of the thighs and of the tibiæ, are black: the wings are colourless; the squamulæ and the costal veins are pale yellow; the stigmata are very pale brown; the other veins are brown.

APHIS SOCIA.

The winged viviparous female. The body is black and very small: the antennæ are a little longer than the body: the tubes are about one-sixth of the length of the body: the tibiæ are dark yellow, with black tips: the wings are slightly tinged with gray; the squamulæ are yellow; the stigmata and the veins are brown.

APHIS PARTICEPS.

The wingless viviparous female. The body is pale brown, small, oval, shining, and rather flat: the antennæ are pale yellow and longer than the body; the rostrum

is pale yellow ; its tip and the eyes are black : the tubes are pale yellow and rather more than one-fourth of the length of the body : the legs are pale yellow ; the tips of the tarsi are black.

APHIS SODALIS.

The wingless viviparous female. The body is dull yellow, brown towards the tip of the abdomen, and of moderate size : the antennæ are black, yellow towards the base, and longer than the body : the rostrum is yellow ; its tip and the eyes are black : the tubes are yellow, with black tips, and as long as one-fourth of the body : the legs are long and pale yellow ; the knees, the tarsi and the tips of the tibiæ are black.

The winged viviparous female. While a pupa it is small, elliptical and pale red ; the feelers are pale yellow : in other respects it resembles the wingless female,

APHIS CONSORS.

The wingless viviparous female. The body is dark brown, dull, small, elliptical, convex : the antennæ are yellow, with black tips, and about half the length of the body : the rostrum is pale yellow ; its tip and the eyes are black : the tubes are dull yellow and about one-eighth of the length of the body : the legs are yellow and rather short : the tarsi and the tips of the tibiæ are black.

The winged viviparous female. The body is black and small : the abdomen is dull green, with a row of black spots on each side : the antennæ are black and as long as the body ; the base of the third joint is pale yellow : the rostrum is pale yellow, with a black tip : the legs are black ; the thighs are pale yellow towards the base ; the tibiæ are yellow, with black tips : the wings are colourless ; the squamulæ and the costal veins are pale yellow ; the stigmata and the other veins are pale brown.

Near Fleetwood, in the beginning of October, with the four preceding species.

Aphides on Sea Wormwood (Artemisia maritima).

APHIS PULVERA.

The wingless viviparous female. The body is oval, rather small, slightly convex, pale green, very thickly covered with white powder : the antennæ are pale yellow, black towards the tips, and shorter than the body : the eyes are bright red ; the rostrum and the tubes are pale yellow, with black tips, and about one-eighth of the length of the body : the legs are pale yellow and moderately long ; the knees, the tarsi and the tips of the tibiæ are black ; the hind tibiæ are brown for nearly half their length from the base.

APHIS AMICA.

The wingless male. The body is gray, narrow, linear, very small, and covered with white dust : the abdomen is red, with a row of black dots on each side : the antennæ are black and very much longer than the body : the eyes are red : the rostrum is yellow, with a black tip : the tubes are black and nearly one-sixth of the length of the body : the legs are black and very long ; the thighs towards the base are pale yellow ; the tibiæ, except the tips, are yellow.

APHIS COLLEGA.

The wingless viviparous female. The body is oval, red, slightly convex, covered with a white bloom, smaller than that of *Aphis pulvera* : the eyes are dark red : the

rostrum is pale red, with a black tip : the antennæ are pale red, black towards the tips, and as long as the body : the tubes are pale red, with black tips, and about one-sixth of the length of the body : the legs are pale reddish yellow ; the knees, the tarsi and the tips of the tibiæ are black.

APHIS COMMODA.

The winged viviparous female. The body is small and black : the abdomen is very dark green : the antennæ are black and as long as the body : the mouth is yellow, with a black tip : the tubes are black and about one sixth of the length of the body : the legs are yellow and moderately long ; the knees, the tarsi and the tips of the tibiæ are black : the wings are colourless and very much longer than the body ; the squamulæ are yellow ; the stigmata and the veins are brown.

APHIS FREQUENS.

The wingless oviparous female. The body is small, spindle-shaped, flat, narrow, dark green, somewhat glaucous, mottled with yellow, and slightly powdered with white : the antennæ are black, yellow at the base, and about one-fourth of the length of the body : the eyes are dark red : the rostrum is dull green, black at the base and at the tip : the tubes do not appear above the surface of the body : the legs are short and dull yellow ; the tarsi and the tips of the tibiæ are black. The eggs, when newly laid, are bright yellow, and about one-fourth of the length of the body of the insect.

The wingless male. It is shorter and darker than the female, with which it pairs in October : the antennæ are quite black and about half the length of the body.

In the beginning of October, near Fleetwood, with the four preceding species.

Aphides on the Small Bugloss (Lycopsis arvensis).

APHIS DIANTHI ?

The wingless viviparous female. The body is pale green, oval and convex : the antennæ are yellow, black towards the tips, and much longer than the body : the eyes are red : the rostrum is pale yellow, with a black tip : the tubes are also pale yellow, with black tips, and as long as one-fourth of the body : the legs are long and pale yellow ; the tarsi and the tips of the tibiæ are black.

A common species, feeding on a great variety of plants.

APHIS LYCOPSISIDIS. Macrosiphum

The wingless viviparous female. The body is oval, convex, shining, of moderate size, dark red, almost black above, or sometimes nearly all black : the body beneath has a light gray bloom, and is almost white about the base of the hind legs : the antennæ are black and a little longer than the body : the eyes, the rostrum and the tubes are also black, and the latter are full one-fourth of the length of the body : the tip of the abdomen is yellow : the legs are black and very long ; the tibiæ, except their tips, are yellow.

APHIS CONSUETA.

The oviparous wingless female. The body is oval, convex, smooth and shining, dull green, of moderate size : there is a broad brown band along the back of the abdomen, with a row of black dots on each side : the antennæ are black and longer

than the body: the eyes are dark red: the rostrum is green: its tip is black: the tubes are black and about one-fifth of the length of the body: the tip of the abdomen is pale green: the legs are long and pale yellow; the thighs from the middle to the tips, the tarsi and the tips of the tibiæ are black; the hind tibiæ from the base to the middle are dull yellow and slightly dilated.

APHIS ADJUTA.

The winged viviparous female. This, while a pupa, is dull red, elliptical, rather flat and of moderate size: the head and the rudimentary wings are greenish: the antennæ are black, dark red towards the base, and a little longer than the body: the rostrum is dull yellow, with a black tip: the eyes are dark red: the tubes are black and about one-sixth of the length of the body: the legs are dull yellow and rather long; the tarsi, and the tips of the thighs and of the tibiæ, are black.

APHIS CONJUNCTA.

The wingless viviparous female. The body is bright yellow, oval, convex, smooth, of moderate size, and rather slender: the antennæ are pale yellow and longer than the body; the tips of the joints are black: the eyes are very dark red or almost black: the rostrum and the tubes are pale yellow, with black tips, and the latter are as long as one-fourth of the body: the legs are very long; the tarsi and the tips of the tibiæ are black: the antennæ and the legs are somewhat bristly.

APHIS BASALIS.

The wingless viviparous female. The body is grayish green, with a whitish bloom beneath, and of rather small size: the antennæ are dull yellow, with black tips, and much longer than the body: the mouth is pale yellow; its tip is black: the tubes are dull yellow, black at the base and at the tips, and at least one-fourth of the length of the body: the legs are long and dull pale yellow; the knees, the tarsi and the tips of the tibiæ are black.

APHIS FAMILIARIS.

The wingless viviparous female. The body is small, oval, buff, smooth, shining, and rather flat: the back is very finely granulated and slightly varied with red and green: the antennæ are pale yellow, black towards the tips, and less than half the length of the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-twelfth of the length of the body: the legs are pale yellow and rather short; the tarsi and the tips of the tibiæ are black.

APHIS ADJUVANS.

The oviparous wingless female. The body is granulated, elliptical, buff, tinged with red, and is narrower and longer than that of the preceding species: the head is crenulate or dentate in front, and there are two little black dots between the eyes: the antennæ are pale yellow, with black tips, and about one-fourth of the length of the body: the legs are pale yellow; the hind tibiæ are brown.

APHIS ADSCITA.

The wingless viviparous female. The body is grass-green, small, oval, and rather flat: the antennæ are black and nearly as long as the body: the eyes are dark red:

the rostrum is dull yellow, with a black tip : the tubes are black and about one-tenth of the length of the body : the legs are dull yellow ; the knees, the tarsi and the tips of the tibiæ are black.

The winged viviparous female. The body is black : the abdomen is very dark green, and sometimes black above : the antennæ are as long as the body : the rostrum is dull yellow, with a black tip : the tubes are black : the legs are dull yellow ; the tarsi, and the tips of the thighs and of the tibiæ, are black : the wings are colourless ; the costal veins are yellow ; the stigmata and the other veins are brown.

APHIS SUFFRAGANS.

The winged viviparous female. The body is dull green and larger than that of the preceding species : the disk of the thorax and that of the abdomen are sometimes almost black above : the antennæ are black and a little longer than the body : the mouth is yellow ; its tip and the eyes are black : the tubes are dull yellow, with black tips, and nearly one-fourth of the length of the body : the legs are yellow ; the tips of the thighs are brown ; the tarsi and the tips of the tibiæ are black : the wings are colourless ; the squamulæ and the costal veins are yellow ; the stigmata and the other veins are brown.

Found, with the nine preceding species, near Fleetwood, in the autumn.

F. WALKER.

August, 1848.

(To be continued).

Of the manner in which the Female of Psocus quadripunctatus constructs a Web to protect her Eggs.—Mr. Westwood, in his ‘Introduction to Entomology’ (ii. 20), relates, that M. V. Audouin had observed that a female winged Psocus was in the habit of weaving a web over its eggs, “which it had deposited in the impressed parts of leaves formed by the veins of the leaf: likewise, that in another species, the eggs, eight in number, were arranged on a leaf in an irregular circle, with the tips all pointing to the centre of the circle.” Dr. Erichson, in his ‘Annual Report’ for 1843, remarks that Huber, in the ‘Memoirs of the Physical and Natural-History Society of Geneva’ (x. i. 35), has made observations on the Psoci. He observed that they lay their eggs upon leaves, and surround them with a web, and that the various species form webs of different kinds. But the chief merit of his observations consists in the discovery of the spinning organ, “which is placed, in the form of a couple of oblong corpuscles, on the border of the labrum;” (Ray Soc. Report, 1847, 165). On the 4th of July, while examining the leaves of the oaks in this vicinity, which are chiefly *Quercus sessiliflora*, I came upon a spotted-winged Psocus (which I afterwards determined to be *P. quadripunctatus* of Fabricius), attending a collection of eggs, covered over with a web, and placed on the underside of the leaf. Though disturbed at my intrusion, after a short flight she returned and took her post at their side. I cannot decide whether the object of her “solitary watch” was the protection of her eggs, or whether she might not yet have completed her operations for their security: from subsequent observations I am inclined to the latter supposition, as I afterwards found

numerous depôts of eggs similarly situated, without any presiding guardian exercising over them a special care. Shortly afterwards I surprised another female of the same species in the act of oviposition. She had already laid two eggs side by side, and was about to deposit the third, which she did between the tips of the two others, so that the three formed a triangle; then, after walking over them twice or thrice, she fastened down another in the place best suited for it, and proceeded in a similar manner till she had laid three others. She scarcely ever made use of the antennæ or palpi to ascertain the proper situation for the forthcoming ovum; but by probing with the apex of the abdomen she accomplished all she desired. After completing the final number of eggs, she continued brooding, as it were, for a short time; no doubt being engaged in ascertaining if she had produced the requisite number. This done, she all at once became animated with a new object, carried out by a new mode of procedure. Hastening with great rapidity, now to one side and now to another, now retracing her steps and now wheeling all round, and at the end of every turn placing her mouth against the leaf, accompanying this action with a rapid movement of her head, two or three times repeated; she seemed to be engaged in a rural dance to celebrate her late happy delivery. It was some time before I could trace the nature of the new operation, till, turning up the leaf to the light, I observed a series of extremely delicate threads already spread over the eggs in various directions. She was now engaged in spinning her web, if I may use the expression; and those rapid movements of the head, when brought into contact with the leaf, were to fix the rapidly-produced threads; while her crossings and counterwindings gave direction to the warp and weft that would envelope her future progeny. I watched her about half an hour, and I left her in full activity, which she never had remitted from the time she commenced. The eggs are usually placed in the hollow between the nervures of the leaf, and occur on the upper as well as on the under surfaces of leaves, though most frequently on the latter. When the web is completed, they appear in white sub-oval glazed patches, not unlike, at a short distance off, the scale of a fish, apparently continuous with the substance of the leaf. The eggs are oblong-ovate, minute, white. I have found the number variously, five, seven, eight, sixteen. Two other species frequent the oak in the woods here, *Psocus ochropterus*, *Steph.*, and *P. longicornis*, *Fab.*, but I have not yet obtained an acquaintance with their economy. They are all cowardly, timid creatures, betaking themselves to the other side of the leaf when disturbed. Huber is of opinion that they feed upon the Uredines of plants, which he supposes have a tendency to follow in the wake of the Aphides. I have made no observation to this effect. I once obtained a great number of a small, hyaline, iridescent-winged species, which I did not ascertain at the time, from *Usnea hirta* (a kind of lichen, gathered from the trunk of the birch), which I had placed between the leaves of a book to fit it for the herbarium. They appear to have lived upon it, as I found them after an interval of some months. What confirms this is, that the lichenized trunks of trees, and the surface of stone walls similarly invested, are the favourite resort for numerous larvæ.—*James Hardy; Penmanshiel, by Cockburnspath, Berwickshire, July 10, 1848.*

On killing Insects by Heated Air.—Perceiving, by the correspondence of some of the contributors to the 'Zoologist,' that chloroform and prussic acid are both used to take the life of insects, and thinking it not improbable that the use of either may be inconvenient to many entomologists, I send you the following account of the means I have used for years. Having a tin box, six inches by four and two in depth, with a piece of cork at the bottom (fastened by a rivet at each corner), to which the insect is

secured, I place it in an oven or by the side of the fire, when, in the course of a few seconds, life becomes extinct by the heated air; but care should be taken not to allow it to remain too long, otherwise the insect must be softened before it can be set.—*Joseph Duff.*

Definitions of Three New British Zoophytes. By ARTHUR HILL HASSALL, Esq.,
F.L.S., Surgeon.

COPPINIA, nov. gen.

Polypidom parasitic, massive, hirsute; polype cells elongated, tubular, often curved, arising at irregular distances (and generally at the angles of junction) out of a cellular basis, the apertures of the cells or spaces of which are often themselves covered in by a lid perforated by a small tubular orifice.

But a single species at present included in this genus,—*Coppinia mirabilis.*

CAMPANULARIA SERPENS.

Polypidom encrusting, spreading; cells small, sessile, often curved, with an even patulous vein; root-like fibres obscure, firmly attached to the object (often a *Sertularia*) upon which the species is developed, and incapable of being detached and exhibited in a separate form.

SERTULARIA GRACILIS.

Polypidom slender; cells opposite, tubular, everted; apertures oblique, slightly mucronated, having an average diameter of about the $\frac{1}{316}$ th of an inch; vesicles sessile, obovate, with small, circular, smooth, terminal perforations, averaging the $\frac{1}{136}$ th of an inch in diameter.

A very distinct and interesting species.

$$\frac{1}{136}'' = .19 \text{ mm}$$

A. H. HASSALL.

July, 1848.

$$\frac{1}{316}'' = .08 \text{ mm}$$

Anecdote of a Rat.—The wall of the renowned Battel Abbey abuts to my neighbour's garden: there is a *Morella* cherry tree growing against the wall. For some days past he missed great numbers of cherries from the tree, and could not detect the thief, till at last, walking one day at noon, he saw a house rat deliberately biting the cherries off by the stalk, and taking them away to a hole in the wall. This is a most extraordinary occurrence, as, the cherries being bitter, one would have imagined that they would have been far from palatable.—*J. B. Ellman; Battel, July 31, 1848.*

On the Arrival of Migratory Birds in the Neighbourhood of Kendal in 1848.

Wheatear	March 29	Common whitethroat.....	April 28
Ring ouzel.....	April 7	Whinchat	„ 29
Willow warbler	„ 12	Common swift	„ 30
Swallow	„ 12	Wood warbler	May 1
Redstart.....	„ 16	Sedge warbler	„ 5
Common sandpiper	„ 16	Garden warbler.....	„ 7
Tree titling	„ 18	Landrail.....	„ 11
Ray's wagtail.....	„ 19	Blackcap	„ 11
Cuckoo	„ 19	Lesser whitethroat.....	„ 11
Sand martin	„ 20	Spotted flycatcher.....	„ 14
House martin.....	„ 26		

The above list contains all the summer migrators of this district, with one exception, viz., the nightjar, of the precise date of whose arrival I have no observation; the distance of its favourite haunts being too great to allow of daily visits about the period of its arrival. On bushy heaths, either on slate or limestone formations, the nightjar may be found from about the end of May till the middle of September. Our partial and irregular migrators are also omitted. The curlew and lapwing quit the coast, and arrive on our moorlands during the first week of March, the latter species appearing a few days earlier. A few pied wagtails remain with us through the winter, but the majority migrate southwards in autumn: they return in March (25th of the present year), and resort to farm-yards and the margins of our river. When the plough gets to work, we meet with them busily employed in running over every portion of fresh-turned earth, their cleanly white contrasting beautifully with the dark parts of their plumage and with the dusky soil; and their sprightly movements and merry chirpings forcibly reminding us that they are among the earliest announcers of returning spring. This species has attracted the attention of agricultural labourers, to whom it is known by the name of 'seed bird.' The pied wagtail conceals its nest in old walls, or under the eaves of out-houses. About the latter end of September, old and young birds assemble on our public walks over-shaded with trees, whither they are evidently attracted by insect-food falling to the ground upon scattering leaves. A month later, large flocks of them may be seen along the shores of Morecamb Bay, where they loiter awhile before the general migration southwards. To the account of the gray wagtail already given in the 'Zoologist' (Zool. 136, 230, 358), I have nothing to add. The greenfinch is occasionally met with in the early part of winter; the same may be said of the lesser redpole; but in the severe weather of January both species entirely disappear, and rarely return till the spring. The greenfinch makes known its arrival by incessant chattering, about the middle of March (25th of this year), and the redpole returns to the larch and alder in the early part of April (9th). Coots return to our towns in March. The moorhen is a constant resident with us, but it makes a partial change of abode with the seasons: in winter, bushy sheltered rivers and mill-ponds are its favourite haunts; as spring returns (early in March), it seeks a summer residence on our more exposed tarns, the sedgy borders of which furnish a suitable hiding-place for its nest. In the same locality we also meet with the spotted crane, which arrives later in the spring, and remains till October. With us the water rail is a winter visitor; nor am I aware of this species ever having been found here in the summer months. In the latter part of April, golden plovers and dotterels occasionally

linger a few days on Kendal Fell, on their way to more elevated and distant breeding-grounds. In some habitats the dunlin is a constant summer companion of the golden plover. The dalesmen call this little *Tringa* a 'jack plover;' but on the coast, where large flocks are found throughout winter, its altered plumage transforms it into the fisherman's '*sand-mouse*.' Numbers of these '*sand-mice*' are taken in the flook-nets, and are exposed for sale in our fish-market, along with oyster-catchers, scoters and scaup ducks, for several weeks in the depth of winter. Our first regular migrator is the wheatear, its arrival being rarely earlier than the 29th of March, and seldom later than the 3rd of April: stone fences and the rocky parts of high inclosures are its favourite haunts, and in these places it appears three or four days earlier than in the valley. During the cold easterly winds, accompanied with hail or snow, which occasionally prevail about the middle of April, I have known wheatears assemble in large flocks: they select a sheltered inclosure, and remain, not on the most harmonious terms with each other, till more genial weather invites them to disband and scatter again in pairs over the country. The ring ouzel was nearly a week earlier than usual: this species abounds on most of our "fells," building in low bushes, or among the rough banks of deep water-courses. This bird becomes very docile in confinement; one in my possession, reared from the nest, far apart from its congeners, proved to be a male bird; and on the following spring whistled correctly and freely the wild notes of its species. The willow warbler was also a few days earlier than in ordinary seasons, the 16th of April being its usual time. For many years I have observed the fact, mentioned by Mr. Selby, of this warbler's arrival coinciding with the leafing of larch plantations. In the early spring of 1846 this harmony between the two was disturbed; for the larch was in leaf, in sheltered places, as early as the 5th of March, and by the middle of that month most of the larch plantations were fully in leaf; but the willow warbler was not with us till the 12th of April. The redstart is an abundant species both in town and country, pouring forth its sprightly song from the top of a chimney or arm of a weathercock. In 1846 I heard its note as early as the 13th of April, the 18th being its usual time. This species arrives about three days sooner in low than in high situations: an old garden-wall is preferred as a nesting-place. From the 15th to the 20th of April, the tree titling arrives,—a plentiful species in most of our cultivated inclosures, particularly such as have the fences tolerably stocked with trees. The 19th of April is an early date for the cuckoo: this observation was taken among the hills, in a range where this well-known cry is first heard. In another mountainous situation we have it noted ten days later; and in the valley our utmost vigilance never welcomed the arrival till the 3rd of May. In 1846, the cuckoo was among the fells still earlier, April 14th; but we failed to hear it in the lowlands before the 1st of May. The sand martin was late, the 13th of April being the average date of its arrival. The present year furnishes the only instance in which I have known the swallow precede the sand martin. This species, without any apparent cause, is becoming annually scarcer, and appearing later in the district. The swallow generally arrives about the 18th of April; in some years as late as the 23rd. I have no previous record so early as the 12th. Not unfrequently, if a few cold wet days set in soon after its arrival, every swallow seems to have forsaken the neighbourhood. This fact arrested the attention of White of Selborne, and he considered the circumstance "much more in favour of hiding than migration; since it is much more probable that a bird should retire to its hybernaculum just at hand, than return for a week or two only to warmer latitudes." The following fact, which came under my notice in the spring of 1840,

is worthy of being recorded, inasmuch as it offers an easier explanation of this temporary disappearance than that of supposing these early visitors to return either to their winter hiding-places or to warmer climates. On a cold wet day, while walking near some mills, my attention was arrested by the continued twittering of swallows: none had been seen for many days, neither were any now to be seen in the air above me: led by the sound, at last, after some research, I found about twenty of these birds seated upon the grate which prevents drifted wood and rubbish from passing down the mill-race to the water-wheel. The poor creatures were miserable objects, and, shivering with wet and cold, were sitting in close contact. To watch them more narrowly, I gradually approached within a few yards, without any token of alarm being manifested. It was evident that they had thus congregated in a calm and sheltered situation for the express purpose of procuring food: there was a constant watchfulness kept up over the river; and whenever an insect moved upon its surface, one or two swallows rushed forth to make a capture: this was most effectually accomplished; for each bird, going open-mouthed, fearlessly dashed its breast upon the water, and easily secured the object of its pursuit. The supply of food was by no means plentiful; and it was evident that weakness and torpor, conjoined with earnest watchfulness for every passing insect, enabled me to observe this interesting group of swallows at my leisure. There is another device to which the swallow has recourse on a cold April day,—too cold to allow of many insects being on wing: it alights suddenly on the ground, secures its prey among the grass or in a piece of dung, then rises, skims away, and repeats this operation several times within a limited area. The swift was five days earlier than its usual time; the 30th of April is the earliest date of its arrival, in a long series of observations: a pair of these birds were seen for several hours on that day; but the weather becoming cold, no more were observed till nearly a week afterwards. Once or twice I have known the swift arrive on the 1st of May. In 1829 it appeared on that day. The following fact is extracted from my note-book of that date: "Three swifts seen on wing early in the morning. During the day a specimen was brought to me in a state approaching to torpidity: it was found suspended by its claws in a lodging-room. I immediately placed the captive in a similar position upon a stretched cord, in a cool part of a sitting-room, when slight symptoms of returning activity were manifested. In this situation the bird was suffered to remain about three hours, but not content with this slow progress I placed it upon a warm hearth: in a few minutes the bird fluttered and attempted to rise from the floor, and after this momentary excitement presently died. Perhaps the too rapid application of heat produced a higher degree of reaction than its exhausted state was able to sustain. Temperature during the day, max. 50°, min. 43°. Hills tipped with snow yesterday." The lesser whitethroat is the most uncertain of our summer migrants: for many years we never met with a single specimen, though forty years ago it appears to have been tolerably frequent, arriving regularly about the 26th of April, and resorting to the hedgerows and gardens in the neighbourhood of the town. Some few years after this species entirely quitted the district, and we were never able to meet with it again till 1834, when a single pair were observed. In 1837 we first saw it on the 11th of May; in 1845, as early as the 30th of April; in 1846, May 1st. Since 1834 we have usually had about five pairs around the town; but within the last three years this species began to be less frequent, and during the present spring I have observed but a single pair, and they remained with us only a short time. The spotted flycatcher was rather later than usual, about the 11th of May (1846) being its usual date: we have had it

as early as May 5th (1844), and as late as the 28th of the same month in 1845, a year in which many of the migratory birds were strangely irregular. The spotted flycatcher begins to build almost immediately after its arrival, returning to the same spot which had been previously selected for a number of years successively. If later than usual in arriving, it completes its nest and deposits an egg within a week after its appearance. The new nest is occasionally placed upon the ruins of the last year's one: indeed I know a situation in which for many years the nests have been piled upon each other, till they form a kind of pyramid of upwards a foot in height: the place selected is a projecting stone in a sheltered ivy. The pied flycatcher is a rare visitor; it may occasionally breed with us: I have once met with it in May, and another year in June.—*Thomas Gough; Kendal, July 19, 1848.*

Arrivals of Migratory Birds at Elveden, Suffolk.

1848.		1848.	
Ringed Plover	about February 7	Nightingale	about April 19
Peewit*.....	„ „ 25	Ray's wagtail.....	„ „ 20
Pied wagtail.....	„ March 7	Dotterel	„ „ 22
Wheatear	„ „ 20	Whinchat	„ „ 28
Great plover	„ „ 22	Turtle dove	„ May 1
Wryneck	„ „ 29	Nightjar.....	„ „ 6
Swallow.....	„ April 8	Common swift	„ „ 6
Cuckoo	„ „ 13	Wood warbler	„ „ 12
Martin	„ „ 19	Spotted flycatcher.....	„ „ 14
Sand martin	„ „ 19		

—*Alfred Newton; Elveden, Thetford, July 26, 1848.*

Nidification of Birds near Elveden.

1848.		1848.	
Raven	about March 12	Common pheasant	about April 13
Thrush.....	„ „ 15	Sky lark	„ „ 14
Blackbird	„ „ 15	Long-tailed tit	„ „ 15
Stock dove	„ „ 21	Common partridge.....	„ „ 15
Missel thrush	„ „ 23	Great plover	„ „ 15
Robin redbreast	„ „ 26	Red-legged partridge...	„ „ 17
Peewit †	„ „ 26	Blue tit	„ „ 20
Wild duck ‡	„ April 2	Pied wagtail	„ „ 22
Hedge sparrow	„ „ 2	Common creeper.....	„ „ 23
Mute swan †	„ „ 4	Wheatear	„ „ 24
Woodcock	„ „ 6	Wren	„ „ 24
Ringed plover.....	„ „ 9	House sparrow	„ „ 25
Starling	„ „ 11	Lesser redpole.....	„ „ 25

* This bird did not arrive to stay until March 14. Last year (Zool. 1871), the date given was that of permanent arrival.

† In the "Dates of Nidification" for 1842 (Zool. 722), the month in which this bird laid its first egg should have been *March*, not *May*.

‡ In a semi-domesticated state.

1848.		1848.	
Common linnet	about April 26	Redstart *	about May 13
Greenfinch	„ „ 27	Stonechat	„ „ 14
Cole tit	„ „ 27	Sand martin	„ „ 15
Ring dove	„ May 1	Golden-crested regulus...	„ „ 16
Chaffinch	„ „ 1	Wryneck	„ „ 17
Little grebe	„ „ 3	Swallow	„ „ 17
Goldfinch	„ „ 4	Martin	„ „ 18
Great tit.....	„ „ 4	Common swift †.....	„ „ 19
Yellow hammer.....	„ „ 6	Common whitethroat ...	„ „ 20
Nightingale	„ „ 8	Red-backed shrike.....	„ „ 24
Blackcap	„ „ 9	Turtle dove	„ „ 24
Kestrel	„ „ 10	Spotted flycatcher.....	„ „ 29
Bullfinch	„ „ 11	Reed warbler.....	„ June 3
Willow warbler	„ „ 11	Cuckoo	„ „ 6
Green woodpecker.....	„ „ 13		

The dates are those on which the birds respectively laid their first eggs.—*Id.*

Arrivals of Migratory Birds at Everton, Bedfordshire.

1848.		1848.	
Pied wagtail	about February 14	Wryneck.....	about April 12
Peewit	„ March 17	Blackcap	„ „ 18
Chiff-chaff	„ April 1	Swallow	„ „ 19
Willow warbler	„ „ 6	Cuckoo	„ „ 19
Redstart	„ „ 10	Nightingale	„ „ 20

The dates of migration and nidification of birds at Elveden were recorded by my brother.—*Id.*

Occurrence of the Melodious Willow Wren (Sylvia Hippolais) in Britain.—Those interested in Natural History, more particularly in Ornithology, will be pleased to hear of the capture, for the first time in the British Isles, of the melodious willow wren (*Sylvia Hippolais* of Temminck), which was killed at Eythorne, near Dover, on the 15th of June. It is a beautiful specimen and in the most perfect plumage, and the person who shot it was attracted by its extraordinary loud and melodious song. It is a species which has hitherto never been found in England; and Gould states, in his 'Birds of Europe,' that it is somewhat singular that this species, so familiar to every naturalist on the Continent, and which inhabits the gardens and hedgerows of those portions of the coasts of France and Holland that are immediately opposite our own, should not, like the rest of its immediate congeners, more diminutive in size, and consequently less capable of performing extensive flights, have occasionally strayed across the Channel and enlivened our glens and groves with its rich and charming song, which is far superior to that of either of the three other species of the group, and only equalled by those of the blackcap and nightingale. The bird, beautifully pre-

* At Tetworth, Huntingdonshire, I this year obtained some eggs of this bird spotted with rust colour, and much like those of the whinchat.

† The early nidification of this bird is somewhat remarkable: it arrived only May 6th.

served by Mr. Gordon, of the Dover Museum, is in the possession of Mr. John Chaffey, of Dodington, whose collection of rare British birds is unrivalled.—*F. Plumley, M.D., F.L.S.; Maidstone, Kent, July 6, 1848.*

Occurrence of the White Wagtail (Motacilla alba) near York.—On the 13th of July last I observed, on the banks of the river Ouse, about one mile above York, what I take to be a rather unusual visitor so far north,—the white wagtail. I noticed the bird several times during an hour or two I spent about there (the sandy beach at Clifton), and certified to myself that I had made no mistake. This was confirmed to my mind by observing a specimen of the bird in the Yorkshire Museum there a day or two after. Perhaps this fact may be accounted for on the score of the exceedingly hot weather at that time, which any one visiting the Agricultural Exhibition on that day cannot but remember.—*J. S. Webb; Huddersfield, August 12, 1848.*

Occurrence of the Cirl Bunting (Emberiza cirrus), &c., near Worcester.—A gentleman in this county (Worcestershire) has shot lately three specimens of the cirl bunting at Malvern: all of them are males, but I should not forget to mention that the females were seen there with them. A Virginian nightingale was also shot within three miles of Worcester last week; but, although I cannot hear of one having escaped from confinement in the neighbourhood, I presume it must have been a tame bird.—*M. Curtler; Bevere House, Worcester, July 20, 1848.*

Occurrence of a White Starling (Sturnus vulgaris) near Bicester.—A white starling was shot early in June, and another seen in the neighbourhood of Bicester, Oxon.—*Thomas Prater; Bicester, August 17, 1848.*

Remarkable Variety of Colour in the Egg of the Green Woodpecker.—I send you the drawing of a green woodpecker's egg, which was taken here last spring. The nest, which consisted as usual of a hole made in a tree, had four other eggs in it, all more or less like the one from which the drawing was taken; the hen bird was in the hole when it was cut open, so that there can be no mistake as to the species to which they belong, since, as you will see, that, except in size, shape and the high polish (which last, however, cannot be shown in a sketch), they do not at all resemble the eggs commonly laid by that bird, being blotched and spotted with reddish brown and tawny yellow, so as to be something like those of the common quail, or that of the Baillon's crake, as figured in Hewitson's Illustrations. The drawing was taken from the most strongly-marked specimen of the five: it is entirely at your disposal, and if you wish it, I shall be happy to send you one of the eggs themselves.—*Alfred Newton; Elvedon, Thetford, July 26, 1848.*

[Probably this paper was not intended for publication, but the information is too interesting to be suppressed: I shall be happy to forward to any of my readers the drawing of the egg for inspection.—*Edward Newman*].

Occurrence of the White Stork (Ciconia alba) near York.—On Friday, the 18th inst., a fine adult male Ciconia alba was shot in the neighbourhood of York. It was in good condition, the stomach filled with remains of Ditisca and other Coleoptera. I saw the bird a few hours after it had been shot.—*Edmund T. Higgins; 25, Spurrer Gate, York, July, 1848.*

[Is not this the bird already noticed, Zool. 2191?—*E. N.*]

Occurrence of the White Spoonbill (Platalea leucorodia) at Aldborough.—A spoonbill, apparently adult, was seen at Aldborough, in July last, by Mr. W. H. Haward, who pursued it for some time, but without being able to get a shot at it. It was feeding in company with herons, and seemed by no means shy, taking wing only for

short distances at a time, till the tide drove it from the river altogether. Unlike the herons, it flew with its neck extended the full length.—*F. W. Johnson, Surgeon; Ipswich, August 18, 1848.*

Egg of the Greenshank (Totanus glottis).—As some of your readers in the 'Zoologist' were interested in the egg of the greenshank which was taken out of a female shot by my brother last summer, it is perhaps worth notice that I have had three eggs sent to me this year from which the female was shot when rising from the nest. The locality was Sutherlandshire, and the time the first week in June. The eggs, of course, in size are the same as the egg we took last year, but considerably more coloured, being nearly the same as the lapwing, but in shape very different, being pyriform.—*W. M. E. Milner; 75, Eaton Place.*

Note respecting the Gray Phalarope (Phalaropus lobatus), the Red-necked Phalarope (P. hyperboreus), and the Great Northern Diver (Colymbus septentrionalis).—I have just returned home from a tour through the Orkney Isles, where I have been collecting the red-necked phalaropes and their eggs, bridled guillemots, dunlins, &c. The red-necked phalarope is a very rare British bird, and very local even in Orkney: it is much rarer than when I visited those islands in 1832 and 1833. I am not aware that any naturalist has mentioned that the female is the handsomest bird, the bay colour on the neck being much deeper, and the rest of the plumage being much finer and brighter than in the male. The female is also a little larger than the male. This is a curious fact; and the species differs in this respect from all others that I know of. To make certain of it, I have dissected all the birds that I have skinned, and noted the sex, and found it to be invariably the case. During the time of incubation the male is bare of feathers on each side of the belly: it would seem that he takes the most active part in sitting, for his plumage altogether looks duller. Although some of the females had not such a large portion of the bay colour on the sides of their necks and breasts as others, yet I was able to distinguish the sex before I skinned them. Capt. Drummond, of the 42nd Royal Highlanders, has also observed this difference in the plumage. I know of three Orkney naturalists who say that the gray phalarope is to be found breeding in North Ronaldshay and Sanday. On the 28th of June I had the good fortune to shoot a northern diver in summer plumage.—*Robert Dunn; Helister, near Weesdale, Shetland Islands, July 19, 1848.*

Capture of the Velvet and Common Scoters (Anas fusca and A. nigra) on Windermere.—A male specimen of the velvet scoter was shot on the 23rd of May, by Luther Watson, Esq., of Ecclerigg. The bird was seen to alight upon the lake, when he was pursued and killed. The female was also observed about the same time. In the first week of July not less than fourteen common scoters were met with on the same part of the lake, opposite Wray Castle: two were killed, and a third wounded. This species occurs every year upon the lake, about the same time of the season, but never stays more than a day or two. My friend Mr. Clowes, of Bowness, to whom I am indebted for the above notices, and who is in possession of the velvet duck, informs me that one of the common scoters killed had the appearance of a young bird.—*Thomas Gough; Kendal, August 2, 1848.*

Occurrence of the Ferruginous Duck (Fuligula nyroca) in Suffolk.—A fine specimen of this rare species was sent me from Leadenhall Market early in April, which I am assured by the dealer who supplied it, was killed on the Suffolk coast.—*F. W. Johnson, Surgeon; Ipswich, August 18, 1848.*

Occurrence of the Roseate Tern (Sterna Dougallii) near Bicester.—A fine specimen

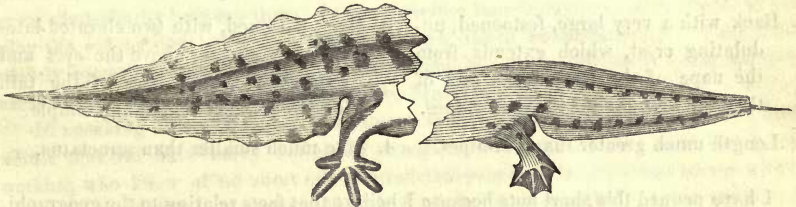
of the roseate tern was shot on a large piece of water adjoining the mansion at Tusmore Park. It is now in the hands of Mr. Osman, bird-stuffer, Oxford.—*Thomas Prater; Bicester, August 17, 1848.*

Occurrence of the Masked Gull (Larus capistratus) at Aldborough.—A beautifully marked specimen of this doubtful species was killed at Aldborough in the early part of April, and came immediately into the possession of Mr. H. Haward, by whom the following measurements were made. Mr. Gould, who does not admit the so-called masked gull to the rank of a species, chanced to be in Ipswich, and had an opportunity of examining the specimen in question soon after it had been set up. Mr. Gould acknowledged he had never before seen so small an example, and I think I may say he is inclined to doubt if this can be a mere variety of *L. ridibundus*.

Weight	...	...	...	6 oz.
Whole length	...	...	...	14 in.
From tip to tip of wings	...	...	...	35 in.
Tarsus	...	...	...	$1\frac{5}{10}$
Middle toe	...	...	...	$1\frac{4}{10}$
Beak to front feathers	...	...	...	$1\frac{2}{10}$

—*F. W. Johnson, Surgeon; Ipswich, August 18, 1848.*

Note on Triton palmipes. By JULIAN DEBY, Esq.



Triton punctatus male, in spring.

Triton palmipes male, in spring.

HAVING just read in the 'Zoologist' (Zool. 2149) a note about a species of newt, by Mr. Wolley, I take the liberty of sending you a few lines on the animal mentioned, which is not an uncommon species with us, having been found in the running streams of the mountainous part of our country, as well as in the great marshes of the Campine. It is the Triton (*Lissotriton*) *palmipes* of Daudin, the *Salamandra palmata* of Latreille and Cuvier, the *Molge palmata* of Merrem.

The first author who mentions this reptile is Razoumowsky, in his 'Histoire Naturelle du Jorat et de ses Environs: Lausanne, 1789, p. 111:' his description is a very good one, and leaves no doubt as to the species he meant. He named it "*Lacerta paradoxa* s. *Helvetica*, ou *Salamandre Suisse*," from a supposed analogy between it and the *Rana paradoxa* of Linneus. He discovered this animal in 1788, in the fountain of Vernens, in the canton of Vaud, where it lived in common with the *Triton punctatus*.

The *T. palmipes* has been found in the Department de la Moselle by Fournel, by Sturm in Germany, by Razoumowsky in Switzerland, by Latreille, &c., in France, by De Selys, Von Haesendonck and myself in Belgium. Prince Charles Bonaparte's thinking it may be a variety of *T. punctatus*, makes me believe that the species is unknown in Italy.

I have kept this newt for more than six months in a glass bowl, feeding it with flies and small earth-worms.

The species of Triton as yet discovered in Belgium are the following :

1. *T. cristatus*, Latr.—*Lacert. palustris*, Linn. *Molge palustris*, Merrem.
2. *T. alpestris*, Laur. Syn.—*S. cineta*, Latr. *S. Wurfhani*, Laur. *Rubriven- tris*, Daud.
3. *T. punctatus*, Daud. Syn.—*S. elegans*, Daud. *Lacert. vulgaris* and *aquatica*, Linn.
4. *T. palmipes*, Daud.

The *T. cristatus* and *alpestris* are very distinct. The *T. punctatus* and *palmipes*, especially the females, are more difficult to distinguish; but the males during the spring months are very different, as the following characters will show.

TRITON PUNCTATUS.

1. Tail gradually tapering to a point.
2. Hind feet having the toes free, only edged by a membrane.
3. Back with a very large, festooned, undulating crest, which extends from the nape of the head to the end of the tail. No lateral elevated ridges.
4. Length much greater than *palmipes*.

TRITON PALMIPES.

1. Tail suddenly truncate before the apex, and terminating in a slender filament 3 lines in length.
2. Hind feet perfectly palmate, all the toes united by a membrane.
3. Back flattened, with two elevated lateral lines passing above the eyes and extending to the base of the tail. The dorsal crest small and simple.
4. Size much smaller than *punctatus*.

I have penned this short note because I believe that facts relating to the geographical distribution of British animals on the Continent may be agreeable to some of the readers of the 'Zoologist.'

JULIAN DEBY.

Laeken, July 11, 1848.

Crag Mollusca.*

I HAVE ever upheld the publication of monographs as a great and lasting boon to Natural History. However limited the subject, we glean from a monograph all that is known respecting it: hence a monograph may be compared to a lens that collects

* Palæontological Society. The *Crag Mollusca*, by SEARLES V. WOOD, F.G.S.

the scattered rays of light into a single point. Much, however, of the value of a monograph must depend on the author: he is not merely a describer, but a compiler, and it is most essential that he possess an intimate acquaintance with his subject; for to describe, however accurately, without a knowledge of prior descriptions (if such exist), is mere waste of time, and to compile without a knowledge of the species intended by the authors cited is mere dishonesty; for guess-work is thus put forth in the garb of fact. Mr. Wood's volume is free from these errors: he is evidently master of his subject; and although he seems to find a difficulty in expressing himself clearly, there is sterling good sense at the bottom of all his observations.

It has lately become fashionable to deride all attempts at the classification of Mollusca by means of their shells; but I incline in this, as in many other instances, rather to side with the derided than the deriders, simply because the figure and structure of the shell may *always* be ascertained as a fact, while the figure and structure of the animal must *often* remain a matter of speculation. I am aware that it is much easier to attain a superficial knowledge of the animal than an intimate knowledge of the shell: in the one case a few vague *descriptions* have to be perused; in the other, a multitude of *individuals* must be carefully and critically examined.

Mr. Wood observes that "considerable difficulty has been experienced in selecting an order of arrangement for the shells described. An immense mass of information regarding the soft parts of Mollusca has been obtained within the last few years; and the animal inhabitants of no less than five thousand species are now known and have been examined; yet notwithstanding this additional information, we are still without a natural classification to which anything like a general concurrence appears to have been given; and it is only necessary to compare such as have been most recently published on the Continent with those of our own naturalists in England, to observe the great dissimilarity between them. It has therefore been thought most advisable to employ the old artificial arrangement, with some slight modifications." This shows plainly enough that the knowledge of the animal is not yet sufficiently advanced to be available even to a practical naturalist like Mr. Wood.

In speaking of the tendency to evade the labours of science as fashionable, I must admit that we have many honorable exceptions: there are men now living and working who know of no short cut to proficiency in knowledge,—who labour with a zeal and earnestness of purpose that has rarely been equalled, never surpassed: these, the working bees of science, stand out in happy contrast to the sybaritic mass, the show-philosophers, who annually perambulate the country with parade and feasting. Mr. Wood is one of the working bees, and his volume is evidently the result of great labour and research,—a fact that will be sufficiently manifest to my readers, when I state that one hundred and fifty works are referred to, more than six hundred figures given, and the species which they represent carefully and minutely described: of course the number of figures considerably exceeds that of species, as in many instances the same shell is given in different positions and under different conditions of age and size. The figures are by G. B. Sowerby, whose name alone is a voucher for their excellence.

The following quotations set forth the plan of the work:—

"The first portion of the present work contains descriptions of univalve shells, or the calcareous remains of Gasteropodous Molluscs. The great variety of forms presented by the testaceous coverings of this class of animals depends upon the height or length of the cone. This ranges through every degree of angularity, from the nearly

discoidal form exhibited by some of the Patelliform species, in which the cone is so depressed as to form an angle, from the vertex to the margin, of 170 degrees, to that of an elongated tube, extended in some cases so much as to become nearly cylindrical, and twisted into almost every conceivable form of spiral, for the convenience, or rather according to the necessities, of the animal. Among the spiral shells these varying forms are the result of an obliquity in the mode of growth, caused by a greater development or increase of one side of the opening, whereby an heliciform direction is given to the shell in the process of enlargement. It is, perhaps, needless to say, that the mode of increase or growth of the shell is by the successive deposition of calcareous matter secreted by the mantle, and deposited on the margin of the aperture, and moulded as it were upon the soft body of the animal, by which means the impress of every peculiarity is formed, and permanently fixed in the calcareous covering. It may, however, be observed, that some of the exterior ornaments of these shells are formed by an extension or protrusion of the mantle, whereby a fimbriated, and sometimes a spinose, varix is formed upon the margin of the outer lip, producing many varied and beautiful ornaments upon the spiral shell, which, however, have no corresponding characters upon the soft body of the animal. It is from these appearances alone that presumed specific distinctions can be determined; and the characters drawn from them, although they may be considered as somewhat extrinsic to the animal, are the only means afforded to the palæontologist for the determination of species. From the recent researches of Mr. Bowerbank and Dr. Carpenter, in their microscopic examinations into the structure of shells, it would appear that there is a more intimate connexion between the animal and its envelope during its lifetime than could be imagined by the supposition of a simple addition of earthy matter deposited upon its cuticle; and that this strong covering is an organized body, and part and parcel of the animal itself.

“ Important as are those observations and suggestions which bear considerably on generic groups, and by which, perhaps, even minor distinctions may hereafter be pointed out, the specific determinations referred to in the present Monograph have not been submitted to such tests, but are merely drawn from the various external differences existing in the shells, and which variations in structure are generally considered as resulting from some internal economy of the animal.

“ This mode of determination may, perhaps, be correctly applicable only to shells in perfect condition; whereas, some of those figured in this work have undergone considerable alteration, either by the loss of colour and animal matter or by decomposition of the outer coating, while many of them have sustained mutilation by the mechanical action of the waves. These accumulated difficulties are serious impediments to accurate comparisons; and the identifications in many cases must be looked upon only as approximations: a correct Marine Fauna of this period will, it is to be feared, be for many years to come a desideratum.

“ In regard to the admeasurement of shells in the present work, minute fractional descriptions have not been very particularly attended to, but a general approximation only has been given, from a belief that a comparison of the dimensions of the aperture and the axis of a shell is a test of fallacious dependence. In many instances, specimens of the same species have a much greater range in variation than, as a general character, would be exhibited between two proximate species; the aperture in some individuals being equal to two thirds of the length of axis, while in others of the same species it does not exceed one third. In an elevated or cylindrically formed shell,

with numerous volutions, the aperture of a young individual bears a greater proportion to the axis of the shell than it does when the animal is fully grown; and it is not always possible to ascertain when an individual has reached a state of maturity. The form of the aperture is nearly the same at all ages or states of the individual, but the lengthening or shortening of the convoluted cone, which may be the result of external causes, will materially affect any mathematical proportion that may be assumed as a standard for specific determination; and the spiral angle, or angle of volution,* upon which some continental conchologists have placed so great reliance, is a test, in my opinion, equally illusory and deceptive. In *Littorina littorea*, for example, the variations extend, in what I firmly believe to be individuals of the same species, from a subulate or tapering form of volution, denoting an angle of scarcely twenty degrees, to another form which, by the application of the same rule, would show an angle of ninety degrees; this may be seen in Plate X., where the figures are by no means exaggerated, but rather fall short of the two extremes. A like want of permanent regularity in proportionate dimensions is equally exhibited in the *Acephala* or bivalve mollusks; and minute attention to accurate detail or mathematical proportions is rarely to be depended upon, even in that class. In some species, of which the general form may be considered as transverse, the character may be traced through trifling and almost imperceptible gradations until it is decidedly elongate, so that mathematical proportions in such cases are of no determinate value. This is more particularly evident in some of the species in the Crag formations, where, perhaps, a rather more than ordinary degree of variation may be seen; and such are the extraordinary varieties in many of the species, that no reliance can be placed, for specific determination, upon minute proportionate dimensions, although, as an auxiliary, they may in some cases be usefully referred to."

The mode in which the author has executed his task appears to me highly creditable, and the work must at once take rank as one of the most valuable contributions science has received during the year. I would, however, extend a word of advice to the publishers, if by that name I may call the managers of the Society, in whose name the volume is issued: they appear to be at present very raw in all the details of getting out a book, and the result is that the present volume is half-spoiled in the issuing: the binding is a flimsy piece of pasted paper, and yet the edges are cut down as though the book were bound in calf and gilt; the paper for the plates is not large enough; and again, the letter-press of such a costly work should have been hot-pressed: these rather important faults arise partially from a false economy, a sort of penny-wise-pound-foolish system, and partly from the absolute want of the requisite trade-knowledge of these secondary but still essential details. I trust that in future publications they will be reformed.—*Edward Newman*.

* The angle formed by a line drawn from the vertex on each side of the shell, which varies, of course, upon the greater or less depression of the volution, the sutural angle, also, depending upon the same cause."

Occurrence of Colias Hyale near Wolverton.—I observed a single specimen of this butterfly on the bank of a cutting, near Wolverton, on the London and North-Western Railway, on the 10th of August. Next year the *lustrum* of this insect will be again complete, and it will be interesting to watch for its appearance as in 1828, 1835 and 1842.—*Edward Newman.*

Occurrence of Vanessa Antiopa near Battel.—A friend of mine saw this butterfly yesterday, settled on a wall: he threw his cap at it, but missed it.—*J. B. Ellman; Battel, August, 1848.*

Occurrence of the Females of Zeuzera Arundinis.—I discovered a male specimen of this singular species floating in a ditch in Holme Fen, some years since: till the present season no others have occurred. In June last two females were taken near the same spot: one of these is in my possession, the other in that of my friend Thomas Henry Allis.—*Henry Doubleday; Epping, July 15, 1848.*

Occurrence of Cerura latifascia near Leeds.—I have this summer bred a specimen of the rare and elegant *Cerura latifascia* of Curtis, from a caterpillar found in this neighbourhood, on the common sallow, last 8th month. It emerged from the chrysalis about five weeks since.—*A. Shipley; Headingley, near Leeds, 7th mo. 27th, 1848.*

Occurrence of Harpalyce sagittaria near Peterborough.—A single example of this pretty species was obtained last season near Peterborough, but I believe it was not in very good condition. A splendid female was sent to me from the same neighbourhood this week. It is a rare species on the Continent, and occurs principally in Hungary. I believe it has never been captured in France.—*Henry Doubleday; Epping, July 15, 1848.*

Capture of Pterophorus pulveridactylus (Haworth) at Battel.—I took one specimen of this insect about the 20th of June last, by sweeping water-grasses here, and had another in my net, which escaped. The former is in the possession of my cousin, Mr. W. Thomson.—*J. B. Ellman; Battel, August, 1848.*

Capture of Lepidoptera at Battel, Sussex.—In the 'Zoologist' for March last (Zool. 2032), I have recorded some captures made by me. This season I have taken a few more rarities, which will show the richness of my entirely neglected locality.

Orthosia munda and *miniosa.* March, on sallows.

Dasytoma salicella. March, on sallows.

Brepha Parthenias. April, on birch trees.

Chaonia roboris. May, on grass.

Argyromiges roborella and *tenella.* May, by beating.

Diaphora mendica. May, on grass.

Heliodes heliaca. May, on grass.

Cleora cinctaria. May, by beating.

Erastria fuscula. May, by beating.

Euthalia impluviaria. May, by beating.

Ephyra omicronaria. May, by beating.

Agrotis putris. June, at sugar.

Apatela leporina. June, at sugar.

Diptera Orion. June, at sugar.

Hemitea cythisaria. June, bred.

Pterophorus calodactylus, leucodactylus and *fuscodactylus.* June, by sweeping.

Cleoceris viminalis. July, at sugar.

Phycita roborella and *consociella.* July, at sugar.

Callimorpha miniata. July, on heath.

Miana arcuosa. July, at sugar.

Harpagus albistrigella. July, on water grasses.

Cybosia mesomella. July, flying.

Chersotis porphyrea. July, at sugar.

Nola monachalis and *strigulalis.* July, by beating.

Ilythia sociella. July, at sugar.

Ilythia roborella. July, by beating.

Clediobia albistrigalis. July, at sugar.

Acidalia inornata. July, flying.

Hipparchus papilionarius. July, flying.—*J. B. Ellman*; *Battel*, August, 1848.

Remarks on the Stinging of Gnats.—Baron Humboldt, in his ‘Personal Narrative,’ p. 114, observes, with regard to a species of gnat called in South America the ‘zanendo,’ that “if left to suck to satiety undisturbed, no swelling takes place, and no pain is left behind.” He also says, “that on presenting quietly the back of the hand to the *Culex cyanopterus*, I observed that the pain, very violent in the beginning, diminishes in proportion as the insect continues to suck; and ceases altogether when it voluntarily flies away.” These passages are quoted by Mr. Jenyns, in his ‘Observations on Natural History,’ with the remark that he had never noticed anything like it in the case of our English Culices. I think I have, as the following fact will show. Some years ago, when sitting in conversation with a friend, a gnat—or gnat-like insect if not a gnat—settled upon my left hand, close to where the bones from the fore-finger and thumb unite; and where—in my own left hand, at least, if not in others—the pulsations of the blood can be at all times distinctly seen. As soon as the insect had alighted, and almost, indeed, while alighting, it introduced its proboscis or sucker into the skin, just where the pulsations were most visible. My friend being, like myself, a lover of Natural History, begged me to let it stay—which I very willingly did. The insect thus undisturbed remained sucking till it was satiated, and till its abdomen had become quite red with the blood it had imbibed; after which it flew away. But neither then nor during the operation did I experience the least pain; nor did any swelling follow; nor was any sign left in the way of discoloration or perceptible puncture to show that such an insect had been at work. That it *was* a gnat I have no doubt in my own mind; inasmuch as, so far as I could judge, it was precisely like many others which I have so often bred, when a boy, from the singular comma-like pupæ so abundant in stagnant waters. If so, there appear to me to be only two ways of accounting for the entire absence of pain. One is, by supposing that the insect in this case was a male, and that the female alone has the power of inflicting a sting: this is somewhat countenanced by an observation Mr. Jenyns has made himself, that “the gnats which *bite* appear to him to be almost all females;”—a fact, he says, also noticed by Humboldt with regard to the Culices of South America: moreover, it is in strict analogy with what we know of other insects,—the bees, for instance, where the queen bee, or perfect female, and neuters, or imperfect females, have the power of stinging, whereas the drones or male bees are without it. Or if this theory is untenable, I have another. Possibly there are some constitutions so framed as to be un-stingable, at least by gnats; and mine may be one of them. Otherwise I know not how to account for the fact, that though I have frequently been where such insects abounded, and where many other persons have been stung, I myself have always escaped. I used to attribute this either to my being very unsavoury, or to some

instinctive knowledge on the part of the gnats as to my being somewhat indigestible for them; but both these suppositions were overturned by the fact of this one having once condescended to try my tap. These, however, are *guesses*, and I should not have sent them, therefore, to a journal for recording *facts*, were it not for a hope that they may elicit *other* facts either in disproof or confirmation of my theories, and may possibly serve as hints to future observers on this interesting subject as to how and what to observe.—*W. S. Lewis; Trinity College, Cambridge, August 19, 1848.*

*Complexity in the Condition of Animals, by Jonathan Couch, Esq., F.L.S., &c.**—In studying the ordinary condition of living creatures, it appears obvious, that however numerous their natural endowments may be, no single one of them is capable of attaining the highest excellence of its nature by its own unaided powers; and that mentally, as well as bodily, it is not to the advantage of the race that they should pursue the end of their existence in a solitary state.

In the highest class of beings, whatever be the advantage which the mind sighs after, the want is felt to belong more to the mental than to the physical nature; and by a sacrifice of some conveniences on the one hand, and by industry on the other, it is possible that man may advance through the stages of growth, from youth to age, unaided and alone. But such is not the case, with regard even to the bodily faculties, in several classes of animals of a lower rank in the scale of existence; there are some that, to cursory examination, appear to occupy an anomalous position, forming exceptions to the regular course of Nature. And yet a deeper inquiry shows that by such a conclusion we give proof of our imperfect apprehension of the order manifest in creation. We suppose the variation to be an interruption of a determined scheme; and, by this misapprehension, presume to conclude that the departure from what we judge the proper line of proceeding is a defect in Nature.

These observations apply, in an especial manner, to some remarkable circumstances which occur in the changes that take place in the course of transition of some families of insects from one of their forms to another. These phenomena are so different from the ordinary course of Nature in kindred classes, that they excite doubts as to the truth of facts which observers teach us; and when the accuracy of the observations are established beyond question, it produces the inquiry,—what reason can be assigned why such caprice has been manifested in creatures which, to our views, might have fulfilled the little duties of their existence in a much simpler manner?

In the latter question there is a tendency to an inquiry after final causes. This, however excellent in itself, would, in our present state of knowledge, more frequently mislead or disappoint than instruct the student of Nature. And therefore, without attempting to pronounce that there is an intentional conformity between the natural or bodily deficiencies of these lower creatures, and the modes of supplying them in those of the higher orders; it yet appears justifiable to adduce them as instances of an analogy which creatures of one family, however remote in the order of existence, are found to bear to those of other families. And these links, even when the closer bands of affinity cannot reach them, yet assimilate the apparent discord into an harmonious whole.

Our idea of an animal may be taken from man himself; who in his passage from

* Reprinted from the Report for 1847 of the Penzance Natural-History and Antiquarian Society,

the condition of infancy to age, has separate duties to perform in every stage:—joys that are congenial to each period, and separate dangers to escape. The proportions of these may differ; for man varies from other animals, in passing through a longer state of pupilage; and there is also assigned to him the period of old age, which is a valuable condition in the system of human life, but which wild animals would find a state of unmixed suffering. But, setting aside these exceptions, his animal life does not differ more from that of other creatures than theirs from each other. So different are the ideas, wishes, and modes of action, of one stage of existence from that of another, that if consciousness could be withdrawn but for an instant, the comparison would scarcely leave him to suppose himself to be the same person. It is one of the analogies in Nature to which we have referred. The changes which thus pass over man and many other creatures in the ordinary mutations of their lives, and which are comprised in the successive development of organs, with their subsequent inactivity and decay, are in others, of a lower rank, brought about by a process almost resembling a new creation; and which condition, because it appears more perfect, and sometimes lasts for an exceedingly short portion of time, has caused it to be said that their lives are reduced to the very shortest span. Such is the case with the *Ephemera* fly; and, as many insects enjoy a sportive existence for many weeks or months in the summer, pity has been expressed for the frail condition of a creature which in a very few hours must die either from exhaustion or old age. But it should be remembered that a much longer period of its life has been passed in a state which, to the creature, was not less a condition of enjoyment; and that the short-lived winged condition is assumed only for a brief space in order to accomplish a specific object not otherwise within its powers. The suddenness with which the change is begun and ended, and not the greatness of the mutation, is the chief subject of our surprise and admiration.

The insect genus *Aphis* includes many species, but they resemble each other in their most curious particulars. The *Aphis* is a little obscure fly which would escape attention if it did not sometimes appear in enormous numbers, and show itself capable of inflicting injury on some valuable vegetables, by piercing the skin and sucking the sap. Curiosity could scarcely fail to be excited by the manner of their appearance; for they are commonly found suddenly congregated in situations to which they could not have ascended from the ground; and it is difficult to imagine how they could have arrived through the air, for few, perhaps none that are visible, are furnished with wings. Their habits are inert, and they are as incapable, as they are indisposed, to wander from their situation.

The researches which explained the mystery of the first appearance of this insect developed a series of circumstances still more unaccountable. It was found that, unlike the *Ephemera*, which assumes its winged condition for the purpose of depositing its eggs, for in this state only is it capable of continuing its race, the *Aphis* multiplies its kind only in the wingless or penultimate state; the young ones being produced alive, in a form that differs from the parent only in size. But while through the summer all the parents, for nine successive generations, are fertile females, yet when winter is near the final brood is constituted of both sexes, and eggs are deposited, which endure the cold, and, in spring, produce the broods that again pass through this remarkable process.

There are insects which deposit eggs when in the condition of larvæ or maggots, which is a degree considerably short of the full development of their perfect type, and

from which therefore the females never emerge. Mr. Guilding discovered this in a moth of the West Indies, where the female never joined her winged mate in his flight. Mr. Newman has shown the same in the British insect *Stylops*; and the reason must be, that this immediate condition is not only equal to, but best fitted for, the duty.

In the *Aphis*, it appears that the freshness of perpetual youth is necessary to the production of a continual succession of fertile young. And as this condition is soon passed in each individual, the advantage is secured, by imparting to each one the power of replacing the required condition in a new generation; and thus time at least is multiplied, by compelling a succession of generations to perform the duties of what otherwise might belong to a single individual.

But while *Aphides* require a definite stage of existence for each one to perform this great duty of existence, there are creatures which, beside passing through some changes, in each of which peculiar functions are displayed, divide in their organization the separate portions of what may be termed their perfect condition; and, by this separation of function, are better qualified to fulfil the complex character which constitutes the completeness of their being. The common honey bee is a familiar example of this. The utility and existence of the males are confined to a short period; and it is probable that the masculine organization will not admit of their fulfilling any other function which can be of advantage to the community. But their case affords a singular exception to the ordinary course of Nature, which usually closes by natural decay the life that is no longer required for the public benefit. The surviving orders in this regal state are so distinct, that they might be thought to be of a different genera of insects; and yet a similar law pervades their nature. The workers are only partially developed, because this condition is sufficiently perfect to qualify them for all their duties; and any additional organization might stand in the way of the uniformity of their proceedings. Of this fact they seem themselves to be conscious, and even appear to appreciate the influences that lead to, or annul it; for when it is judged by the community that their female sovereignty is in danger of being lost, they are able to procure by appropriate nourishment the development from an inferior condition, of what at first sight might be pronounced a distinct species.

A solitary creature must possess the power of supplying all its wants; but the capacity for this is more frequently obtained by limiting the wants than by enlarging the powers. Gregarious animals have more necessities,—beyond the reach of the powers of an individual to supply; they are therefore compelled to divide their efforts, in order that their combined means may secure the advantages of provision and defence, otherwise out of their reach. Faculties become thus increased by division, and time by the distribution of effort; a few organs, by a difference of direction, being trained to perform work which, under another system, would demand the labour of many. In man, an arrangement like this obtains efficiency in intellectual effort as well as in mechanical dexterity; and it is the converse of the same principle which shows itself in creatures of the lowest level; in some classes of which the individual literally ceases to be a separate being, and its actions are so fused into those of another, as not to be entitled to even the possession of a separate share of vitality. It forms the principle of vegetation, but is common, also, in the lower marine animals, which consist of agglutinated individuals, that thus form a mechanical analogy with the most lofty attainment of intellectual existence.

Description of the Genus Dasypoda, belonging to the Family Andrenidae. By FREDERICK SMITH, Esq., Curator to the Entomological Society.

DASYPODA, *Fab., Latr., Curtis.*

Apis, Fab. *Andrena*, Panzer. *Trachusa*, Jurine. *Melitta*, Kirby.

Generic characters.—Antennæ filiform, geniculated; 12-jointed in the female, 13-jointed in the male. The labrum transverse, the anterior margin ciliated. The mandibles arcuate, bidentate at their apex, pubescent beneath towards their base; the stemmata placed in a slight curve on the vertex; the maxillæ elongate, ciliated with long hair at their base; the terminal lobe lanceolate, slightly pubescent at the extreme apex. The maxillary palpi 6-jointed, the labial palpi 4-jointed. The tongue inflexed. The wings with two submarginal cells.

Female.—DASYPODA HIRTIPES, *Fab.*

Dasypoda Swammerdamella, *Curtis.*

Andrena plumipes, *Panzer.*

——— *succincta*, *Panzer?*

Melitta Swammerdamella, *Kirby.*

Male.—DASYPODA HIRTA, *Fab.*

Apis farfarisequa, *Panz., not Scopoli.*

Female.—(Length 7 lines). Black; the pubescence on the face cinereous, very pale fulvous on the cheeks, and black on the vertex. Thorax, the pubescence fulvous above, intermixed with black between the wings; on the sides and beneath it is pale fulvous; the tegulæ nigro-piceous; the wings hyaline, slightly clouded at their apical margins, the nervures rufo-piceous; all the femora beneath are fringed with very pale fulvous hair; on the anterior tibiæ and tarsi above, as well as on the intermediate tarsi above, it is fuscous; on the intermediate tibiæ above it is fulvous; on the anterior and intermediate tarsi beneath it is rufous; the posterior tibiæ and basal joint of the tarsi clothed with long fulvous pubescence; the calcaria and apical joint of the tarsi testaceous. Abdomen subovate, clothed with

short black pubescence; the base has a thin clothing of pale pubescence, and on the apical margins (which are piceous) of the second, third and fourth segments, is a fascia of white pubescence, the first generally interrupted; the apical fimbria sooty black.

Male.—(Length 6 lines). Black; the pubescence above is long, and of a pale fulvous, rather darker on the thorax; beneath it is nearly white; the face clothed with white pubescence; the antennæ filiform, nigro-piceous beneath, not so long as the head and thorax; the wings as in the female; the basal joint of the posterior tarsi elongate, clothed beneath with fulvous pubescence; the calcaria and apical joint of the tarsi testaceous. Abdomen ovate-lanceolate, the apical margins of the segments testaceous; the second, third, fourth and fifth segments have a fascia of white pubescence, the two first generally interrupted.

This very elegant insect is rather local. I have taken it at Birch Wood, Paul's Cray, Charlton and Gravesend, Kent; at Weybridge, Surrey; and at Hawley, Hants. At Southend it occurs in great profusion; also at Budleigh-Salterton, Devon, as I am informed by Mr. Walcott. Mr. Kirby captured it at Barham, Suffolk; and Mr. Curtis in the Isle of Wight: so that it is met with in many localities in the West of England, but I have not heard of its having been observed in the North. I have frequently met with the burrows which they form in banks of a light sandy soil; and have dug them out at the beginning of August in their perfect beauty of colouring, which in the male soon fades from a pale orange or fulvous to an uniform gray. This genus appears to form a connecting link between *Macropis* and *Panurgus*. *Dasypoda* usually appears about the beginning of August; but this depends in some degree upon the weather, which has considerable influence upon the appearance of all the aculeate Hymenoptera, sometimes retarding their appearance three or four weeks, or causing them to be as much earlier. I have taken the female of *Dasypoda* as late as the 6th of September.

FREDERICK SMITH.

5, High Street, Newington,

August, 1848.

*The Physical Atlas.**

THIS elaborate work, which is just finished, conveys to the mind a greater quantity of information than could be gained in any manner equally expeditious. As a glance at a map gives a more complete and correct idea of the figure of a continent or island than could be expressed in words, so do the maps of facts in this Atlas give a more thorough insight into physical phenomena than could be gained by any amount of reading. Where the body of facts is so immense, and the description of information so diversified, it follows almost as a matter of course that errors should occasionally creep in and omissions now and then occur. A few such might perhaps be detected; but I notice this simply for the sake of asserting that a careful and critical examination of several of the maps in detail has convinced me that the greatest care has been taken in making them as perfect as possible: and I have great pleasure in pronouncing the 'Physical Atlas' an inestimable treasure to the man of science; and in recommending it most cordially to the readers of the 'Zoologist.'

I quote the prospectus in order to give a better idea of the undertaking than any description I could draw up for the occasion, and I advisedly pronounce that the work itself fully bears out all that the publishers say in its favour.

"For imparting information, or for retaining what may already be possessed, those means are calculated to be most successful which readily commend themselves to the eye. Hence ordinary Geographical Maps convey more rapid and accurate knowledge regarding the positions of places, and their relative distances from each other, than can be done by the most elaborate verbal description; but the inventive genius of Professor Berghaus has imparted a significance to symbolical representation, transcending all the anticipations which have been formed regarding the capabilities of the art. The contents of the many volumes which formerly were the sole depositories of information regarding the different kingdoms of nature, have been condensed and reproduced in a graphic shape, in his 'Physical Atlas,' with a conciseness, precision, completeness, and promptitude of expression altogether unattainable by any agency previously employed. And not only has this been the case in the reproduction of the reading matter contained in books, but the process has been extended to the transmutation of the masses of statistical data expressed in the Tabular enumerations of works of reference. The elegant substitute of Linear Delineation registers the most complicated results in a perspicuous form, and affords inexhaustible facilities for recording the continued advances of science. In the emphatic language of the late President of the Royal Geographical Society, 'Professor Berghaus has made the progress of science visible'—he has mapped out the length and breadth of philosophic research, and shown what it has done, and what it has left undone, in expounding the physical constitution of the Globe.

"The Physical Atlas has been the labour of many years; and in addition to scientific qualifications of the highest order, and an intimate acquaintance with the writings and discoveries of Brewster, Sabine, Jameson, Whewell, Greenough, Humboldt, Von Buch, Arago, and other distinguished names in modern research, Professor

* 'The Physical Atlas, a Series of Maps illustrating the Geographical Distribution of Natural Phenomena. By HENRY BERGHAUS, LL.D., and ALEXANDER KEITH JOHNSTON, F.R.G.S. Edinburgh: Johnston. London: Saunders. Glasgow: Lumsden.'

Berghaus has had facilities for the accurate and extensive execution of the undertaking beyond what any other individual could be expected to possess. Geography forms a part of the course of education to all persons preparing for public service in Prussia; and with that sedulous attention to the cultivation of physical philosophy, which characterizes the German mind, the whole of the military force and mercantile marine of the Prussian Government are expected to report minutely on the geographical condition of every country which they visit; and from his position as Principal of the National Geographical Institute, the most valuable reports and surveys have been made under the special direction of Professor Berghaus, and with reference to the completion of his arduous task.

"In the 'National Atlas,' Mr. Johnston presented the British public with some specimens of this meritorious work, which had the effect of eliciting earnest requests from members of the Geographical Society, and other learned bodies, to publish an English edition of the whole; and in compliance with their wishes, this important publication is now about to be commenced. The documents, which will be found in another part of this prospectus, will evince the interest excited by the work, as well as authoritatively indicate the superior manner in which the present edition will be produced.

"A liberal selection from the designs and copious MS. and letter-press descriptions of Professor Berghaus will constitute the basis of the new Atlas—a copyright arrangement having been made with him for the purpose; but instead of being a reprint from the original plates, the Maps will not only be larger in size, and more complete, but will contain the latest corrections from his own hand; and in addition to this, Maps on subjects not treated of by Professor Berghaus will be constructed by Mr. Johnston, under the superintendence of competent writers, in order that the whole may be in unison with the state of science in Britain up to the period of publication.

"No theories founded on mere hypothesis will be introduced. All the Maps, so far as can be ascertained, will embody the results of actual observation and experiment. Indeed, the plan of linear delineation provides, to some extent, a guarantee against crude speculation, as it compels all systems to assume a definite shape, readily susceptible of direct examination as separate truths, or relatively, as they are in consonance with cosmical laws universally admitted. There will, however, be introduced on all suitable occasions, such inductive data as seem to point at the solution of unexplained phenomena—a course which, it is presumed, is not beyond the proper sphere of the work, and which may not be unattended with advantage to scientific inquiry.

"But the predominating rule, both in the selection and treatment of subjects, will be *utility*, in the widest sense of the term. The projectors do not wish to deal with science for abstract purposes; they wish to deal with it as developing the resources of Nature, and as guiding art in adapting these to the exigencies of Man. They, therefore, solicit attention to this Atlas, as a repertory of ascertained facts and principles, bearing directly on many of the most important departments of human occupation. To the political economist, man of letters, merchant, manufacturer, navigator, and tradesman, the work will be of great practical advantage; while to the professor and teacher it cannot fail to be of inestimable service, in materially facilitating the important business of education."—*Edward Newman.*

Killing Insects by Heat.—As Mr. Duff's method may not be entirely practicable to all entomologists, from the want of suitable apparatus, permit me to offer the plan I follow, which is most simple. It is this:—Having returned from collecting, I lay aside all my pill-boxes containing specimens of Micro-Lepidoptera until morning, if inconvenient to kill them the same night. During the summer season, I place a small tin stand (a tripod, the legs of wire or small iron) over a lighted candle, and place my pill-boxes upon the stand. *A second or two* will cause life to be extinct. I then turn out the insects upon a sheet of white paper, and either set them at once or pin them and relax them at leisure. There is no necessity whatever to pin the insects before killing them. My other method of killing specimens taken at sugar, is, next morning to turn them out of the boxes upon a dark piece of paper, pin them, and immediately prick them in the throat with a fine-pointed steel pen dipped in oxalic acid dissolved in water: this acid does not act upon the pin or injure the insect.—*J. Johnson*; 27, *Kensington Square, September 8, 1848.*

Nest of Honey-bees in a blank Window.—Among my manuscript notes on Natural History in 1842 I find the following: “September 6, 1842. Adwick Hall, near Doncaster. Took bees' nest, formed in a blank window in one of the attic bed-rooms. Weight of comb and honey 160 lbs.” A swarm of bees had been noticed some years previous to have taken up their quarters within the casement of this window; but as it was at a considerable height from the ground, they were left unmolested. The swarms yearly thrown off appropriated other compartments in the same old mullioned window, and at each new emigration the humming became more and more audible within the room, which was separated from the scene of their labours by a very narrow partition. The nest was taken from within; and it required a considerable removal of laths and mortar to enable the captor to secure the combs, which were literally tier above tier to the height of some feet.—*Peter Inchbald*; *Storthes Hall, Huddersfield, September 5, 1848.*

Singular Monstrosity in the Antenna of Lamia textor.—A specimen of *Lamia textor* was captured near Bristol, by Mr. F. V. Jacques of that city, having the basal joint of the left antenna much enlarged, and exhibiting a socket whence one or more joints had been broken. The insect was captured on the 18th of July, 1848.—*Frederick Smith*; *Newington, August, 1848.*

Note on the Capture of Lamia textor.—I have been extremely fortunate in capturing eleven specimens of this rare and noble insect. I took them late in the evening in a willow-bed in this neighbourhood, some feeding on the young shoots and others crawling up. I am inclined to think it is a nocturnal species, as I have often been in the same locality in the day-time, and earlier in the evening, but never saw a specimen before. I kept some of them alive for several days, and in confinement one or two of them fed by day as well as in the evening: they eat the leaves and bark of the young branches, and require to be kept in large or strong boxes, or they will eat their way out: I had one eat its way through a chip box, and another through a pill-box, but I had taken the precaution of enclosing those boxes in a larger one, or I should have lost both specimens. The following are the dates of the captures:—August 7, four specimens; August 8, one specimen; August 12, three specimens; August 17, two specimens; August 19, one specimen.—*Stephen Barton*; *Upper Maudlin Street, Bristol, August 23, 1848.*

Descriptions of Aphides. By F. WALKER, Esq.

(Continued from page 2221).

Aphides on the Corn Marigold (Chrysanthemum segetum).

APHIS SONCHI, var. ?

The wingless viviparous female. This is a pale brown variety of *Aphis Centaureæ*. The body is oval, convex, smooth, shining, and has a metallic tinge above: there is a rim on each side of the abdomen; its back is sometimes tinged with green, and its tip beneath is black: the antennæ are black and as long as the body: the rostrum is black: the tip of the abdomen and the tubes are pale yellow; the latter are black at the base and at the tips, and are rather more than one-fourth of the length of the body: the legs are long and pale yellow; the coxæ, the tarsi, and the tips of the thighs and of the tibiæ, are black.

APHIS DIANTHI ?

The wingless viviparous female. The body is small, pale green, oval, convex, shining: the antennæ are pale yellow and much longer than the body; the tips of the joints are black: the rostrum is pale yellow; its tip and the eyes are black: the tubes are also pale yellow, with black tips, and as long as one-third of the body: the legs are long and pale yellow; the knees, the tarsi and the tips of the tibiæ are black.

The winged viviparous female. This, while a pupa, is grass-green and nearly linear: the head is pale green.

It feeds also on the scarlet pimpernel (*Anagallis arvensis*).

APHIS PERSOLA.

The winged viviparous female. While a pupa the body is small, elliptical, rather flat, pale green, and slightly mottled with darker green: the antennæ are black, pale yellowish green towards the base, and nearly as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale green, with black tips, slightly spindle-shaped, and as long as one-sixth of the body: the legs are pale green; the tarsi and the tips of the tibiæ are black.

It feeds also on the scarlet pimpernel (*Anagallis arvensis*).

APHIS DIANTHI ?

The winged viviparous female. While a pupa it is pale, sometimes streaked with black, and slightly tinged with green: the antennæ are black, yellow at the base, and as long as the body: the rostrum is yellow; its tip and the eyes are black: the tubes are yellow, with black tips, and about one-fifth of the length of the body: the legs are yellow; the knees, the tarsi and the tips of the tibiæ are black. In the winged state it is black: the abdomen is dark yellowish green; its disk is almost, and it has a row of black dots on each side: the antennæ are a little longer than the body; the base of the third joint is pale yellow: the rostrum is pale yellow, with a black tip:

the tubes are dull yellow, with black tips, and about one-fifth of the length of the body: the legs are pale yellow; the tarsi, the tips of the tibiæ, and the thighs from the middle to the tips, are black: the wings are colourless; the squamulæ and the costal veins are yellow; the stigmata and the other veins are brown.

These species were found near Fleetwood in the beginning of October.

Aphides on the Scarlet Pimpernel (Anagallis arvensis).

APHIS NIGRO-RUFA.

The wingless viviparous female. The body is black, narrow, linear, and rather flat: the prothorax is dull red; the fore border, the hind border and the under-side are pale red: the abdomen is dark red: the antennæ are black and very much longer than the body: the rostrum is yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and as long as one-fourth of the body: the legs are yellow and very long; the thighs from the middle to the tips, the tarsi and the tips of the tibiæ are black.

APHIS RUMICIS?

The wingless viviparous female. The body is small, black, oval, convex, slightly shining, dull brown beneath: the rostrum is dull yellow, with a black tip: the tubes are yellow and as long as one-fourth of the body: the legs are long and dull yellow; the tarsi, and the tips of the thighs and of the tibiæ, are black.

Aphides on the Cedar of Lebanon (Larix Cedrus).

APHIS SEJUNCTA.

The wingless viviparous female. The body is greenish yellow, mottled with bright red, rather large, oval, plump, smooth, shining: the antennæ are black, dull red at the base, and a little longer than the body: the eyes are bright red: the mouth is pale red; its tip is black: the tubes are black, yellow at the base, and as long as one-fourth of the body: the legs are yellow, long and hairy; the tarsi, and the tips of the thighs and of the tibiæ, are black.

Near London, before the middle of June.

Aphides on the Ground Ivy (Glechoma hederacea).

APHIS GLECHOMÆ.

The wingless viviparous female. The body is pale green, oval, convex, smooth, shining: the head is almost white: the antennæ are brown, longer than the body, pale green at the base: the eyes are dark brown: the rostrum is pale green; its tip is brown: the tubes are also pale green, with brown tips, and hardly one-sixth of the length of the body: the legs are slender and very pale green; the tarsi are brown.

Near London, at the end of April.

Aphides on the Sea Lavender (Statice Limonium).

APHIS SONCHI, var. ?

The wingless viviparous female. The body is oval, convex, dull olive-green, not shining, of moderate size: the antennæ are yellow, black at the base and towards the tips, and as long as the body: the rostrum is dull yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and about one-sixth of the length of the body: the legs are dull yellow and rather long; the tarsi, and the tips of the thighs and of the tibiæ, are black; the hind shanks are slightly dilated from the base to the middle.

Near Fleetwood, in the beginning of October.

Aphides on the Woodruff (Asperula odorata).

APHIS ASPERULÆ.

The wingless viviparous female. The body is reddish brown, pale red beneath, oval, convex, shining, rather broad and shallow: the antennæ are brown, slender, setaceous, shorter than the body, dull buff towards the base, which is dark brown: the eyes are dark brown: the rostrum is brown; its base is pale red: there is a rim and a row of impressions on each side of the back: the tubes are brown, and between one-fourth and one-fifth of the length of the body: the legs are pale buff, slender and moderately long; the tarsi and the tips of the tibiæ are brown. When young the body is linear and pale red: the head, antennæ, rostrum, tubes and legs are somewhat darker.

Near London, in the beginning of May.

The winged viviparous female. While a pupa the body is red: the antennæ are pale red and as long as the body; their tips are brown: the tubes are as long as one-fourth of the body; their tips are brown: the legs are pale red and moderately long; the tarsi are brown: the rudimentary wings are pale red. The wings are unfolded in the beginning of June, and the body is then dark reddish brown and shining: the antennæ are black and as long as the body: the eyes are black: the rostrum is pale yellow; its tip is brown: the tubes are black, and as long as one-sixth of the body: the legs are long and pale yellow; the hind thighs except the base, the tarsi, and the tips of the thighs and of the tibiæ, are brown: the wings are colourless and much longer than the body; the squamulæ are pale yellow; the stigmata are dull yellow; the veins are pale brown.

It disappears before the beginning of July.

Aphides on the Germander (Veronica Chamædryd).

APHIS VERONICÆ.

The wingless viviparous female. The body is very small, oval, convex, smooth, shining, and of a very dark olive colour or almost black: there is a rim on each side of the body: the antennæ are black, slender, setaceous, and more than half the length of the body: the eyes are dark brown: the rostrum is black: the tubes are

also black and nearly one-fourth of the length of the body: the legs are dark green and of moderate length. The young ones are like their mothers, but more dull, flat and linear; their colour, when very young, is dark green.

Near London, in the spring; it disappears soon after the beginning of summer.

Aphides on the Meadow Flea-wort (Pulicaria dysenterica).

APHIS RUMICIS.

The winged viviparous female. While a pupa it is of moderate size, elliptical, black, dull, with a row of white spots on each side of the abdomen: the under-side of the thorax is covered with a white bloom: the antennæ are black, dirty white towards the base, and as long as the body: the tubes are as long as one-eighth of the body: the legs are dull white; the tarsi, the knees and the tips of the tibiæ are black: the rudimentary wings are dark green.

Near Lancaster, in September.

Aphides on the Knot Grass (Polygonum aviculare).

APHIS POLYGOINI.

The wingless oviparous female. Sluggish, small, dull brown, brownish yellow on each side, fusiform, granulated, narrow, rather flat: the front of the head is notched: the antennæ are pale yellow, brown at the base, black towards the tips, and nearly one-fourth of the length of the body; the first and the second joints are brown; the third and the fourth are white; the seventh is fully as long as the sixth: the rostrum is pale yellow; its tip and the eyes are black: the abdomen is shorter than the thorax, which is much developed; the legs are short and pale yellow; the tips of the tarsi are black; the hind tibiæ are brown.

The wingless male. It is smaller and more depressed than the female; the antennæ are black and about half the length of the body.

Found near Newcastle, in the beginning of October, by Mr. Hardy, to whom I am much indebted for his kindness in forwarding me a great variety of Aphides, with notes of their habits in relation to the plants whereon they feed.

Aphides on the Plum (Prunus domestica).

APHIS SIMILIS.

The wingless viviparous female. The body is grass-green, with a darker green line down the back, elliptical, convex, not shining: the antennæ are pale green, brown towards the tips, and nearly one-fourth of the length of the body: the rostrum is pale green; its tip and the eyes are brown: the tubes are also pale green, with brown tips, and about one-twentieth of the length of the body: the legs are short and pale green; the tarsi are brown.

Towards the end of April.

APHIS PRUNARIA.

The wingless viviparous female. The body is dark red and covered with a white bloom, short, elliptical, and very plump: the antennæ are black and nearly half the length of the body: the eyes and the rostrum are also black: the legs and the tubes are of the same colour, and the latter are as long as one-tenth of the body.

The winged viviparous female. While a pupa it resembles the wingless insect in colour, but is much more flat.

In the beginning of June.

APHIS PRUNINA.

The wingless viviparous female. The body is grass-green, elliptical, and slightly convex: the antennæ are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow, with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the tarsi and the tips of the tibiæ are brown.

At the end of April.

APHIS ——— ?

The winged viviparous female. The body is black: the fore border, the hind border and the under-side of the prothorax are reddish yellow, as is also the abdomen, which has a black disk and a row of black spots on each side: the antennæ are much longer than the body: the rostrum is yellow, with a black tip: the tubes are dull yellow, slightly spindle-shaped, and nearly one-fourth of the length of the body: the thighs are pale yellow, black from the middle to the tips; the tibiæ are dark yellow; their tips and the tarsi are black; the squamulæ and the costal veins are pale yellow; the stigmata are pale brown; the other veins are brown.

Abundant near Lancaster, in the middle of October.

APHIS ——— ?

The winged viviparous female. While a pupa the body is nearly elliptical, grass-green, sometimes varied with red: the antennæ are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow, with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the tarsi and the tips of the tibiæ are brown. When the wings are unfolded the body is small, black and shining: the abdomen is dark green, with a row of black spots on each side; these spots are sometimes confluent, and spread over the whole back, whose disk is always black: the antennæ are shorter than the body: the rostrum is dull green, with a black tip: the tubes are black and as long as one-eighth of the body: the legs are dull yellow; the thighs except the base, the tarsi and the tips of the tibiæ are black: the wings are colourless and very much longer than the body; the squamulæ are pale green or pale yellow; the stigmata are pale brown; the veins are brown. The legs are sometimes quite black, with the exception of the dull pale yellow base of the fore thighs. Perhaps this is the winged state of *Aphis prunina*.

During May.

APHIS MALI?

The winged viviparous female. The body is grass-green and rather small: the disk of the head, and of the thorax above and below, brown: the abdomen has a row of black spots on each side: the antennæ are black and nearly as long as the body: the eyes are also black: the rostrum is pale green, with a black tip: the tubes are green and nearly one-fifth of the length of the body: the legs are long and pale green; the tarsi, and the tips of the thighs and of the tibiæ, are brown; the wings are colourless; the squamulæ are very pale green; the stigmata are very pale brown; the other veins are brown.

APHIS DIVERSA.

The wingless viviparous female. The body is small, oval, yellow, velvet-like, rather flat, slightly tinged with green: the antennæ are pale yellow, black towards the tips, and a little more than one-fourth of the length of the body: the eyes are bright red: the rostrum is pale yellow, with a black tip: the tubes are pale yellow, with black tips, and as long as one-sixth of the body: the legs are pale yellow; the thighs are pale green; the tips of the tarsi are black.

Found with the following species on Eryngo, near Fleetwood, in the beginning of October.

APHIS DISPAR.

The wingless viviparous female. The body is small, yellow, velvet-like, nearly linear or a little broader towards the tip of the abdomen, which is tinged with brown: the prothorax and the mesothorax are well developed: the antennæ are yellow, black towards the tips, and as long as the body: the eyes are red: the rostrum is pale yellow, with a black tip, and reaches the hind coxæ: the tubes are pale yellow, with black tips, and nearly one-fourth of the length of the body: the legs are pale yellow and very long; the thighs are pale green; the knees, the tarsi and the tips of the tibiæ are black.

APHIS LATERALIS.

The wingless viviparous female. The body is rather small, black, shining, smooth, convex, pale greenish yellow along each side: there is a row of impressions on each side of the back of the abdomen, the sutures of whose segments are indistinct: the body beneath is dull green, reddish towards the thorax and the head: the antennæ are black, pale yellow towards the base, and little more than half the length of the body: the tubes are black and about one-eighth of the length of the body: the legs are pale yellow and moderately long; the four hinder thighs except at the base, the knees, the tarsi and the tips of the tibiæ are black.

Found with *Aphis Rumicis* on the groundsel (*Senecio vulgaris*), near Lancaster, at the end of September.

APHIS GALEOPSISIS?

The wingless viviparous female. The body is small, oval, pale whitish green, rather flat, not shining: the sutures of the segments are pale and distinct: the antennæ are pale yellow, pale green at the base, brown at the tips, and shorter than the body:

the eyes are red : the rostrum is pale yellow, with a black tip : there is a darker green spot on each side of the abdomen, at the base of the tubes, which are pale yellow, with black tips, and about one-sixth of the length of the body : the legs are pale green and rather long ; the tarsi and the tips of the tibiæ are black.

Found by Mr. Hardy near Newcastle, on *Potentilla anserina*, in the autumn.

F. WALKER.

September, 1848.

(To be continued).

Bats flying by Daylight.—I find one or two notices in the 'Zoologist' (see, for instance, Zool. 6 and 35) of bats having been observed flying about in the day. I have myself witnessed such an occurrence twice, and both times, I think, during the present year ; viz., once at Clifton about May, and once at Weston-super-Mare in June. In each case the bat was apparently large, and flew in circles, with considerable power of wing, at a very great height from the ground. The days were peculiarly bright and still, and the hour of observation, in the first instance, about two or three,—in the other about one. Occasionally both individuals made short erratic swoops, or dodges rather, in the air ; and the Clifton one, I observed, was annoyed and "mobbed" (if we can use such a term where the *mob* consisted only of one), for a short time, by a small bird. The particular species of the bird I could not at that distance determine, but I could see that it was very weak-winged and incapable of continued flight ; and was not at all surprised, therefore, to find it very speedily descending again to the ground. As for the bat, who seemed utterly unconcerned about the hostile attentions paid him, I continued watching his movements against the bright blue sky till my eyes ached, and I finally left him careering about seemingly as fresh as ever. His congener at Weston I watched in the same way, till he flew so high as to be absolutely out of sight.—*W. S. Lewis ; Trinity College, Cambridge, August 19, 1848.*

Fondness of the Cat for Nemophila insignis.—It is a fact which has been known for a long time that the cat is very fond of some plants, such as the valerian and cat-mint, but I am not aware that the *Nemophila insignis* has yet been noticed as one for which puss has great favour. In my garden this season I had a fine clump of the *Nemophila*, and I contemplated a fine display of its lovely cærulean flowers when the season came round ; but one morning when I paid my accustomed visit to my floral favourites, I found the *Nemophila* beaten very much into the ground, and its leaves covered with hairs that had undoubtedly been left there by puss, as her foot-prints were most distinct in the soft ground around the beaten circle where the *Nemophila* grew. I could not at all understand the reason of puss having abused my favourite annual so much ; and so I softened the ground with a trowel, hoping that it would not be again interfered with by the feline gentry. Next morning, however, they had paid another visit, and again the ground was hard beaten, and the leaves of the plants bore a profusion of hairs. I then began to think that there was something peculiar about the roots of the plants, and dug round and round them in the hope of finding a valerian root, or something of that kind ; but nothing to the purpose could be found. I again dressed the border, and, for the protection of the plants, stuck in a garden-reel

and line, with several flower-supports and flower-pots amongst them. On the following morning all these were rolled away, and things were as before. Puss had been there. I then tried watering of the plants, and several other plans; but all to no purpose: they were every morning found to have been visited by *Felis Catus* during the preceding night. With the view of *proving* whether it was the *Nemophila* itself or the particular spot of ground on which it happened to grow, that puss liked to gambol upon, I dug up all the plant and smoothed the ground; but it has never been revisited since in the same manner, although on the first morning after that operation a few *paw-prints* were traced, showing, perhaps, that puss had come to seek her favourite flower, but found it not. I likewise had a plant of the *Nemophila* removed to another part of the garden, and it had not been long there when it was attacked and destroyed by the cats rolling upon it. I still have a plant of this beautiful flower in full bloom in another border, but *it* has escaped all feline molestation. For my own part I cannot detect any peculiar scent in the leaves (or flowers either) of the *Nemophilla*, but it must surely have such to the cat. We are well aware that many odours that are powerfully felt by some persons are often but very faintly, and sometimes not at all, felt by others;* and if such differences obtain in the olfactory organs of the different members of the human family, is it not quite reasonable to suppose that differences in these of an equal degree may exist in the different ANIMALS, of which class man ranks himself as No. 1?—*George Lawson*; 212, *Perth Road, Dundee, August, 1848.*

P.S.—Subsequently to writing the above I procured a small quantity of the dried roots of valerian, which I offered to our house cat, but she showed no symptoms of concern about it at all. I have been told that cats are equally fond of the dried root as of the fresh plant, but *our* puss seems to care nothing for it. May it only be some cats whose olfactory organs are excited by the valerian; and is this excitement peculiar to any age or sex? The particular individual I have referred to is a female, and not as yet full grown.—*G. L.*

Carnivorous Propensity of the Hedgehog.—About six weeks ago a female hedgehog was brought to me, with four young ones. One only of the latter I kept. It was placed in a closet in the kitchen, from which it rambled at will through the offices: these were much infested by *Blattæ*, and their numbers were visibly thinned. On Friday night, as the servant was going to bed, she started a mouse in the scullery, which escaped her efforts to catch it: the cat was out on night rambles. On the following morning, the servant, on entering the kitchen, found Hoggy on the hearth, making a *sucking* noise, with a mouse in his grasp, the legs of the mouse still struggling. The servant says the hedgehog appeared to have sucked the blood through a small hole in the neck, that being the only visible injury to the mouse. Hoggy is quite tame, often gnaws a bone, and shows great intelligence.—*Thos. F. Reynolds*; *Wallington, Surrey, August 24, 1848.*

Escape of a Rhinoceros at Galaway, in America.—“The peaceful village of Galaway was on Sunday (23rd inst.) thrown into great excitement by a report that a huge

* I have just been reading an article in Loudon's 'Magazine of Natural History,' by the Rev. W. T. Bree, of Allesley Rectory, which contains some interesting remarks "On the peculiarities in the Scent of some Flowers." For those readers who take interest in the subject, I may mention that the article will be found in vol. 5, p. 758.

rhinoceros, belonging to Raymond and Waring's menagerie, had broken loose from his cage, and was committing terrible havoc among the cattle in that vicinity.

"It seems that some time during Saturday night the elephant, Columbus, who is not one of the most amiable disposition, amused himself by tearing off the strong iron bars from the cage in which the rhinoceros was secured. Finding himself menaced the rhinoceros came from his cage and showed fight. He was no sooner on the ground than he received two or three heavy blows from the trunk of the elephant upon his back, which beat him to the earth, where he lay for some time as if dead.

"The elephant then endeavoured to finish him by trampling upon him, which the rhinoceros evaded by jumping under the body of his powerful antagonist, in which position he gave the elephant several upward thrusts with his prodigious horn that projects from his head, which put his elephantship *hors du combat*. The keepers finding it impossible to secure the infuriated beast alone, called upon the neighbours for assistance, which was promptly given, and every effort made to prevent him doing further mischief.

"In the meanwhile the rhinoceros had got into the open fields, where he confined his operations to the frightening of horses and cows that were in the pasture, and then took to a neighbouring swamp, where he luxuriated in his favourite recreation of bathing, with the same unconcern as if he had been wallowing among his own native marshes in Japan.

"Finding it impossible to capture him by means of traps and meshes, the proprietors at length came to the conclusion of despatching him, and for this purpose procured a number of muskets. They might as well have fired against the side of a stone wall, as his hide resisted the balls as if he had been encased in iron. Up to a late hour last evening they had not succeeded in taking him, although more than five hundred persons were engaged in the pursuit, and a large reward offered for his capture alive. The elephant is so badly wounded that he is not expected to recover."—*Western Friend, Eighth Month (August) 3, 1848.*

Russian Field Sports.

[The following extract is from a clever and entertaining little book, intitled 'Life in Russia, or the Discipline of Despotism. By EDWARD P. THOMPSON, Esq.*' I feel confident that the readers of the 'Zoologist' will be pleased with the passages I have cited, and I hope they may be induced to peruse the volume.—*Edward Newman.*]

"The wolf is destroyed in a variety of ways: sometimes he is ridden down by two horsemen, whose horses, passing with ease and rapidity over the hard-frozen surface of the snow, soon bring them abreast of him, when he is brought down by a pistol shot; and at other times he is enticed within gun-shot, by men driving in a sledge in the neighbourhood of his haunts, and dragging a bundle of hay behind them with a long

* London: Smith, Elder and Co., Cornhill. 1848.

cord, while a pig, which they have with them, is made to squeal. The wolf, attracted by the cries, and ravenous from hunger, pursues the object trailing behind, and is despatched by a rifle-shot from the sledge. This sport can only be followed out on moonlight nights, and is particularly dangerous when several wolves join in pursuit of the sledge.

“The elk and bear are ‘rung,’ as it is technically termed. The peasants take great pleasure in this process, and the more so as they obtain a handsome gratuity if they succeed in accomplishing the operation; which they will travel a hundred miles to communicate to any sportsman willing to avail himself of it; and there is no lack of them. Engaged, probably, in their daily vocation of felling wood, in places approachable only under the influence of the frost, they first perceive the track of the beast in the snow, and tracing it till it is lost in some wood or cover, they encircle the spot at some distance, to be satisfied that the game is safely lodged. This task is repeated for several successive days, with the most watchful eye for any fresh traces which might announce its escape; and if there be none, a messenger mounts his sledge and starts for St. Petersburg to sell his discovery (if of a bear, for one hundred roubles), and returns with the party of sportsmen to indicate the spot.

“A crowd of peasants surround the place, and among them, at proper intervals, the marksmen take their stand. The dogs are turned in, and, if it be a bear, it is soon roused, and attempts to break the ring; an unsuccessful shot turns him back, to appear at another place, and if he be not fortunate enough to get clear, which seldom occurs, his doom is soon fixed. Sometimes there is a difficulty in dislodging him, and the hunters are compelled to enter the wood to face him in his own fastnesses; which is an affair of some danger, as he then often turns, and becomes the attacking party. A gentleman of my acquaintance had a very narrow escape of his life in one of these encounters; and, indeed, but for his strong nerve and high courage, he must have perished. In following up a wounded elk, he came most unexpectedly on a she bear, with two cubs of the previous summer by her side; he fired and missed, and, before he had time to defend himself, she rose at him and struck him down, but left him in her anxiety for her cubs; he immediately got on his legs, and, firing again, wounded the beast, which again ran at him, threw him down in the struggle, tore his thigh with her hind claws, bit him severely through the arm and wrist, and, without relinquishing her grasp, stood over him, holding him down. Notwithstanding the acute agony he was suffering, and his almost powerless condition, he contrived to draw his hunting knife, and to inflict a deep wound in the region of the heart of the beast; which he, however, just missed, as I saw afterwards on dissection. After this effort it appears he sank exhausted; but his friend, who had heard the shots from a little distance, having providentially hurried up, though fearfully alarmed at the state of his companion, went up to the head of the bear, and discharged his rifle into its brain. The animal fell dead on the body of her unconscious antagonist, who was immediately extricated and restored, and had nerve enough to travel home at speed, a distance of upwards of one hundred miles, to get the assistance there which it would have been in vain to have sought for in the wilds of the interior.

“Single-handed pursuit is seldom ventured on; but an English gentleman in the Russian military service, who is a perfect ‘Leather-Stocking’ in his habits and tastes, is said to prefer this mode, and will spend weeks alone in the woods. In the winter of 1841 I saw an immense bear of six hundredweight, which he had kept in pursuit of for two days. It is impossible to estimate the distance he traversed in that

time; but the feet of the bear were rubbed raw by the continuance of its exertions. On another occasion, and when less experienced in the sport, he was shown a bear sleeping in an exposed place under the fallen trunk of a tree. In order to approach the beast without disturbing it, and to prevent the sharp crackling sound of the snow, he took off his shoes and stockings, regardless of the intense cold; and on coming up to it, he found the animal so coiled up, and with its paws so drawn over its head, that a decisive shot was impossible. He unhesitatingly poked it with the muzzle of his piece, and on its arousing, destroyed it by a well-directed shot in the head. His barack-room at a Gatchina is no baronial hall, but trophies and weapons of the chase ornament its walls most characteristically.

“The elk is a timid animal, and difficult of approach, frequenting the low and swampy spots in the woods; generally in small herds of seven or eight individuals. The same process of ‘ringing’ and surrounding it is observed as with the bear; but the sport requires greater quickness and watchfulness. The speed of the elk is tremendous; and it is as much by the ear as by the eye that its progress is ascertained; the crashing of the branches, as he plunges through them, giving intimation of his approach. It is extremely difficult on that account to hit him mortally, if at all; for a shot to hit him must be fired at least a yard ahead of him, and almost in anticipation of his appearance, as he crosses the narrow openings in the woods; and if the wound be not mortal at once, his great strength will enable him to cover an immense distance before he falls, or, perhaps, to escape entirely; but if struck on the head or shoulder he rears his giant height in the air and falls backwards. A full-grown elk will measure seventeen hands high. In the summer of 1839 one was caught alive, by some boatmen, within two miles of St. Petersburg, as it was swimming across the Neva to gain the Finnish side.

“The extraordinary speed and powers of endurance of the elk led to its being used for purposes of draught; but, as criminals availed themselves of these advantages to elude justice, either by positive escape, or by evading suspicion by transporting themselves, in an incredibly short space of time, to a distant part (like Turpin in his ride to York), the employment of this animal is strictly prohibited both in Russia and Sweden.

“Of late years some small herds of the roebuck have been met with; but my informant tells me they have as yet been unmolested.

“The lynx is not uncommon; but, from its extreme cunning, it is rarely captured. The only specimen I have seen was caught in a steel trap buried beneath the snow; but I have heard of their having been seen, during the severity of winter, in the gardens of the suburbs of the city. It is the true *Felis Lynx*, and measures about three feet in length; the tail being from six to seven inches, and the tuft of hair at the tips of the ears being very strongly defined.

“The white fox (*Vulpes arcticus*) of the arctic regions has been found once only; and Dr. Brandt of the Imperial Museum has told me that he considers that fact as the most extraordinary one in natural history which has ever come within his knowledge; as they have never been known so far south, and their nearest habitat—where they are rare, even—is full one thousand miles from the place where this individual was shot; namely, in 68° or 70° of latitude. The animal in question was shot by a peasant at Pilna, about thirty miles from St. Petersburg, in the depth of winter; and in the subsequent summer another perfectly black animal was seen, which, being the colour of the young, proves that the one killed was not a solitary specimen.

“The common fox is very abundant; and its fur, from its great length and thickness, is much prized as a lining for ladies' cloaks,—fifty pounds being the usual price for a set of skins. It is not followed as a beast of chase, excepting in the neighbourhood of St. Petersburg, where a subscription pack of hounds is kept up by some of the English merchants; but their success has been very partial, and the only good run which I believe they have on record is one they had with a wolf, which was fairly run into the open country, after a two hours' burst without a check. The shortness of the season, and the abominable marshy country which they have to traverse, readily accounts for the short register of deaths.

“The white hare, and a large variety of the common species, are very abundant. The former, which is, during the summer months, of a whitish gray, does not assume its winter garb till the end of October; and even then some few specimens which came under my notice retained some shade of their summer coat: it is, however, properly speaking, of a pure white, with a little black spot at the extremity of each ear. The other variety I have alluded to stands remarkably high on its legs, which are very fine and slender, and weighs as much as fifteen pounds.

“The capercali, the hazel (*Tetrao bonasia*), and the willow grouse (*Tetrao saliceti*) are extremely abundant; but the first is difficult of approach, and is rarely procured except at the first dawn of day. The shooting season begins on the 1st of July, long before the young broods are strong enough to afford legitimate sport.

“Ducks and other water fowl afford some sport in the early spring, on their return from the south; but they do not form a prominent feature in the catalogue of sports.

“To the naturalist, taking it in its full extent, this country is the richest field in Europe in every branch of natural history; but its very extent is a difficulty not to be overcome. Specimens are not easily procured, excepting in ornithology; and these may be found in considerable variety in the bird market of St. Petersburg. I often visit the spot for that purpose, and have picked up specimens which are remarkably scarce in England; but, though they are often sufficiently abundant, they are rarely in a fit state to preserve. The great black woodpecker (*Picus martius*) is by no means uncommon; but it is invariably deprived of its bill, from some superstitious feeling of the people; and the long-tailed duck (*Anas glacialis*) is always imperfect in its tail feathers. The pine grosbeak (*Loxia enucleator*) I have bought, both alive and dead, for two-pence, and I occasionally see the snowy owl (*Strix nyctea*), the passerine (*Strix passerina*), the great-eared owl (*Strix bubo*), the hawk owl (*Strix funerea*), the crossbill (*Loxia pityopsittacus*), snow bunting (*Emberiza nivalis*), shore lark (*Alauda alpestris*), blue-throated warbler (*Sylvia suecica*), and the Tetrao medius, a bird which has been erroneously supposed to be a hybrid between the capercali and the black-cock.

“At the commencement of the winter, I have found dead bullfinches and waxen chattering (I can never get this latter alive) exposed for sale in vast profusion as an article of food much esteemed. The season makes no difference in the exposure of birds in cages for sale; and as a substitute for water, the drinking-troughs are kept filled with snow. The Russians are particularly fond of birds, and having so few natural songsters of their own in the northern districts, they are supplied by the Germans, who bring, in the first ships on the opening of the navigation, myriads of larks and canaries, which fill the air with their melody in the garden of the custom-house, where they are exposed for sale.”—p. 232.

Provincial Names of Birds, Nottinghamshire.—I have forwarded to you a list of the names which are given to the commoner birds in this neighbourhood: most of the names were the only ones by which I knew the birds in my bird-nesting boy's days. The long-eared owl is called the 'long-horned owl,' 'wood owl.' The barn or white owl is called a 'padge owl,' 'screech owl.' The red-backed shrike is a 'butcher bird.' The crow (*Corvus corone*, Linn.) is called the 'carrion crow.' The hooded crow is the 'Norway crow.' The rook is generally called a 'crow.' The missel thrush is the 'storm-cock.' The redwing is a 'pop.' The wryneck is a 'cuckoo's maiden,' 'cuckoo's mate.' The green woodpecker is a 'nick-a-pecker.' The greenfinch is known only by the name of 'green linnet.' The bunting is called a 'bunting lark.' The yellow bunting is the 'yellow hammer.' The black-headed bunting is a 'reed sparrow.' The chaffinch is the 'spink,' sometimes 'pink.' The goldfinch is called a 'red-cap,' a 'sweet William,' a 'proud tailor,' all the names equally common. The linnet is a 'gorse linnet,' a 'gray linnet.' The lesser redpole is known only by the name of 'French linnet,' or 'averdevine.' The lark is a 'sky-lark.' The tree pipit is a 'ground-lark.' The meadow pipit is a 'pipit lark.' The redstart is always a 'fire-tail.' The sedge warbler is called a 'reed wren.' Our summer warblers go by the name of 'peggies;' for instance, the whitethroat is known by the name of 'peggy whitethroat:' the black-capped warbler is a 'black-headed peggy:' the willow wren or warbler is a 'bank peggy,' from its building in banks. The common wren is a 'jenny wren.' The hedge warbler is a 'hedge sparrow.' The whinchat is never anything else than an 'utick.' The great titmouse is a 'black-cap.' The blue titmouse is a 'blue-cap,' or more commonly still a 'willow-biter.' The long-tailed titmouse is a 'featherpoke.' The swift is here also a 'deviling.' The ring dove is a 'wood pigeon.' The heron is a 'long-necked crane,' a 'heron-sewgh.' A labouring man called one day to tell me a friend of his had shot a 'butter-bum:' the bird proved to be a bittern. The lapwing is here always called a 'peewit.' The common sandpiper is a 'summer snipe.' The landrail is a 'meadow drake.' The little grebe is a 'dipper,' a 'puffin.' The terns are 'sea swallows.'—*W. F. Footitt, Surgeon; Newark, Notts, August, 1848.*

Thievish Propensity of the Jackdaw (Corvus Monedula).—In looking over my journal for the month of March, 1846, I found a note on the thievish propensity of a jackdaw in our neighbourhood, and as I consider it highly illustrative of the character of that tribe of birds, I here extract it for the 'Zoologist.' "I was very much amused this evening in witnessing the *unprincipled* conduct of a jackdaw. A house sparrow in his peregrinations had succeeded in picking up a large piece of bread: this he was not allowed to enjoy in peace, for *Jack*, who had cast his longing eyes upon the delicate morsel, immediately gave chase, and very soon deprived the sparrow of his *hard-earned* bit, with which he flew to an elevated station, where his mate, who was awaiting his return, shared with him the food so fraudulently acquired."—*E. J. R. Hughes; St. Bees, August 30, 1848.*

Discoloured Egg of the Green Woodpecker (Picus viridis).—On reading the account of the variety of the egg of the green woodpecker (Zool. 2229), it struck me that the reddish brown and tawny yellow colour of the egg might have been occasioned by the juice of a fungus, or the rain soaking through a rotten part of the tree in which the bird had laid its eggs, similar to the eggs of the lesser or little grebe, which, after they have been laid two or three days, become of a dark brown colour mixed with yellow, on account of the rushes on which the eggs are deposited being wet and rotten; but

these eggs are easily brought to their original colour by being laid in hot water and then rubbed with a cloth, so that it could be easily proved by trying one of these eggs; but Mr. Newton says, that "except in size, shape and the *high polish*, they do not at all resemble the eggs commonly laid by that bird, being blotched and spotted with reddish brown and tawny yellow, so as to be something like those of the common quail, or that of the Baillon's crake, as figured in Hewitson's Illustrations." Now if this variety had been occasioned by the way I supposed, the *polish* would have been very much diminished. I should much like to know whether the eggs were originally the same colour as that mentioned; if so, there must be something as yet unknown which should cause the eggs of this bird and others very often to differ from their original colour.—*P. E. Hansell; Thorpe, near Norwich, Norfolk, September 4, 1848.*

Occurrence of Temminck's Stint (Tringa Temminckii) near Penzance.—A specimen of this small Tringa was shot in a marsh between Marazion and Penzance, on Monday, the 28th ultimo, by Mr. W. H. Vingoe. Independently of the shorter tarsus, the winter plumage of this bird is distinguished from that of the Tringa minuta by a more general prevalence of dusky brown on the upper parts, the centres of the dorsal feathers being lighter, with the borders having a narrower and darker circle of paler colour than the little stint. The habits of the bird are also much wilder and more shy than its congener. Several redshanks and a green sandpiper were also observed in the same locality, together with about ten couple of snipes.—*Edward Hearle Rodd; Penzance, September 7, 1848.*

*The Dodo and its Kindred.**

IN years that are gone we used to believe most devoutly in the existence of the dodo; we used to read, with unquestioning faith, in the 'Encyclopædia Britannica' and other works of like authority, full descriptions of the shape, weight and colour of various species of *Didus*,† detailed particulars of the materials of which their nests were constructed, of the size and colour and number of their eggs, and of the number of days required for incubation. By degrees, however, certain naturalists, who want to know the rights of everything, pried somewhat inquisitively into dodo-history, and the result was, that nest, eggs, colours, and all, fell away one by one, and we were left with marvellously little information concerning these marvellous birds; in fact some naturalists even went so far as to assert that the dodo itself was a sham and a cheat, and that the only existing fragments said to have been once the property of a living dodo—namely, the head and foot in the Ashmolean Museum at Oxford, and the foot in the British Museum—belonged respectively to different birds; the head to a vulture, the feet to some gallinaceous bird. The pertinaciously inquisitive spirit to which

* 'The Dodo and its Kindred, or the History, Affinities and Osteology of the Dodo, Solitaire, and other Extinct Birds of the Islands of Mauritius, Rodriguez and Bourbon. By H. E. STRICKLAND, M.A., F.G.S., F.R.G.S., and A. G. MELVILLE, M.D. Edin., M.R.C.S.' London: Reeve, Benham & Reeve. 1848.

† The dodo is the *Didus ineptus* of authors.

I have alluded as tending to the demolition of all fictitious histories, would perhaps very shortly have driven the dodo completely into the realm of fiction, had not the learned professor C. Reinhardt discovered a second skull amongst a heap of rubbish at Gottorf, and on carefully examining its structure pronounced it to be that of a pigeon and not that of a vulture.* To this suggestion of Reinhardt I called the attention of naturalists last year, when a like theory was started by Mr. Strickland at the meeting of the British Association.

It is now clear that there exist two skulls and two feet which belong to no species of bird now known to naturalists, and although the positive evidence connecting the head and feet is not complete, yet there is no good reason for disputing that the heads and feet belonged to the same species of bird. Such is the *absolute* evidence of the existence of the dodo; and Mr. Broderip, in an admirable paper published in the Penny Cyclopædia,* has collected a mass of corroborative evidence from the accounts of voyages, from paintings, and from engravings, and thus we have a very tolerably authentic history of the bird to supply the place of that fictitious history which we are compelled to abandon.

Such, then, is the state of our knowledge of this interesting member of the animal kingdom, and the whole has been re-arranged, the quotations given at full length, the engravings and paintings accurately copied, the remains carefully examined, minutely described and beautifully figured, and the pigeon theory adopted, defended, and, some think, satisfactorily established, in the admirable work whose title I have given overleaf. There can no longer be a rational doubt that these birds, together with the solitaire and one or two other cognate species, formerly inhabited the islands of Mauritius, Rodriguez and Bourbon, and owe their utter extinction to the hand of man. It is supposed that these islands were discovered during the first half of the sixteenth century, but we have no precise date. The passages cited from the old voyagers are most interesting, and I cannot help regretting that so large a portion of them are in the Latin, antiquated French or Dutch languages, and only translated in an Appendix to which no reference is made; in fact, the insertion of the translation is confessedly an after-thought. The following is from a very rare Dutch tract in the British Museum. It is the journal of Willem van West-Zanen, one of the captains who sailed in the fleet of Heemskerck and Harmansz, in the years 1601-3: it was printed in 1648, under the editorial care of H. Soeteboom.

“The birds, of which the island † is full, are of all kinds: doves, parrots, Indian crows, sparrows, hawks, thrushes, owls, swallows, and many small birds; white and black herons, geese, ducks, dodos, tortoises, seacows.

“The sailors were out every day to hunt for birds and other game, such as they could find on the land, while they became less active with their nets, hooks, and other fishing-tackle. No quadrupeds occur there except cats, though our countrymen have subsequently introduced goats and swine. The herons were less tame than the other birds, and were difficult to procure, owing to their flying amongst the thick branches of the trees. They also caught birds which some name *dod-aarsen*, others *dronten*; when Jacob van Neck was here, these birds were called *wallich-vogels*, because even a long boiling would scarcely make them tender, but they remained tough and hard,

* Kroyer's Tidskrift, iv. 71. Lehman in Nov. Act. Ac. Leop. Car. xxi. 491.

† Penny Cyclopædia, ix. 47.

‡ Mauritius.

with the exception of the breast and belly, which were very good; and also, because, from the abundance of turtle-doves which the men procured, they became disgusted with the dodos. The figure of these birds is given in the accompanying plate; they have great heads, with hoods thereon; they are without wings or tail, and have only little winglets on their sides, and four or five feathers behind, more elevated than the rest. They have beaks and feet, and commonly in the stomach a stone the size of a fist.

“The dodos, with their round sterns (for they were well fattened), were also obliged to turn tail; everything that could move was in a bustle; the fish, which had lived in peace for many a year, were pursued into the deepest water-pools.

“On the 25th July, Willem and his sailors brought some dodos which were very fat; the whole crew made an ample meal from three or four of them, and a portion remained over. . . . They sent on board smoked fish, salted dodos, land-tortoises, and other game, which supply was very acceptable. They were busy for some days bringing provisions to the ship. On the 4th of August Willem’s men brought 50 large birds on board the *Bruyn-Vis*; among them were 24 or 25 dodos, so large and heavy that they could not eat any two of them for dinner, and all that remained over was salted.

“Another day, Hogeveen (Willem’s supercargo) set out from the tent with four seamen, provided with sticks, nets, muskets, and other necessaries for hunting. They climbed up mountain and hill, roamed through forest and valley, and during the three days that they were out they captured another half-hundred of birds, including a matter of 20 dodos, all which they brought on board and salted. Thus were they, and the other crews in the fleet, occupied in fowling and fishing.”—p. 15.

In 1627 Sir Thomas Herbert visited Mauritius, and found it still uninhabited by man. He met with the dodo, and thus describes it in his work intitled ‘Some yeares Travels into divers parts of Asia and Afrique, describing especially the two famous empires, the *Persian* and *Great Mogull*. Revised and enlarged by the Author.’ Fol. London, 1638.

“The Dodo comes first to our description: here and in Dygarrois (and nowhere else that ever I could see or heare of) is generated the dodo, (a Portugize name it is and has reference to her simplenes), a bird which for shape and rarenesse might be called a phoenix (wer’t in Arabia): her body is round and extreame fat, her slow pace begets that corpulencie; few of them weigh lesse than fifty pound: better to the eye than stomach: greasie appetites may perhaps commend them, but to the indifferently curious, nourishment, but prove offensive. Let’s take her picture: her visage darts forth melancholy, as sensible of Nature’s injurie in framing so great and massie a body to be directed by such small and complementall wings as are unable to hoise her from the ground, serving only to prove her a bird; which otherwise might be doubted of: her head is variously drest, the one half hooded with downy blackish feathers; the other perfectly naked; of a whitish hue as if a transparent lawne had covered it: her bill is very howked and bends downwards, the thrill or breathing place is in the midst of it; from which part to the end, the colour is of lightish green mixed with a pale yellow: her eyes be round and small and bright as diamonds: her clothing is of finest downe, such as you see in goslins: her trayne is (like a *China* beard) of three or foure short feathers; her legs thick and black and strong; her talons or pounces sharp; her stomach fiery hot, so as stones and iron are easily digested in it; in that and shape not

a little resembling the *Africk* ostriches; but so much as for their more certain difference I dare to give thee (with two others) her representation.”—p. 19.

This appears to be the evidence of an eye-witness; but what will our readers say to the evidence of another eye-witness, Sir Hamon Lestrange, who saw a dodo exhibited in the streets of London. The original MSS. from which the following passage is extracted may be seen in the British Museum (Sloane MSS. 1839, 5, p. 9).

“About 1638, as I walked London streets, I saw the picture of a strange fowle hong out upon a cloth, [hiatus in MS.] and myselfe with one or two more then in company went in to see it. It was kept in a chamber, and was a great fowle somewhat bigger than the largest Turky cock, and so legged and footed, but stouter and thicker and of a more erect shape, coloured before like the breast of a young cock fesan, and on the back of dun or deare colour. The keeper called it a dodo, and in the ende of a chimney in the chamber there lay a heape of large pebble stones, whereof hee gave it many in our sight, some as bigg as nutmegs, and the keeper told us shee eats them (conducing to digestion), and though I remember not how farr the keeper was questioned therein, yet I am confident that afterwards shee cast them all againe.”—p. 22.

This is indeed a choice morsel, and one that immediately follows is also of great interest: it is copied from Tradescant's Catalogue of his 'Collection of Rarities preserved at South Lambeth near London,' and is dated 1656. Here is the entry: "Dodar from the island Mauritius; it is not able to flie being so big." Willughby, in his 'Ornithologia,' states that he saw this specimen in Tradescant's Museum: two other writers also speak of it, Llhwyd in 1684 and Hyde in 1700. It passed, with the rest of the collection, to Oxford, and there formed part of the Ashmolean Museum, until ordered to be destroyed by the authorities, on the 8th of January, 1755. Mr. Strickland suggests, with great show of reason, that this specimen was the one seen alive by Sir Hamon Lestrange. Notwithstanding the fiat of the big-wigs of Oxford for the destruction of the only dodo then in the world, some underling seems to have secreted its head and foot; and these have afforded Dr. Melville the materials for the elaborate essay which forms the second part of the volume before me.

I must now take a glance at the *solitaire*, a bird formerly inhabiting the island of Rodriguez, and one which Mr. Strickland describes as an homologous representative of the dodo. It is introduced to us in the following quaint translation from François Leguat's 'Voyages et Aventures,' published in London in 1708.

“Of all the birds in the island the most remarkable is that which goes by the name of the *solitary*, because it is very seldom seen in company, tho' there are abundance of them. The feathers of the males are of a brown grey colour; the feet and beak are like a turkey's, but a little more crooked. They have scarce any tail, but their hind-part covered with feathers is roundish, like the crupper of a horse; they are taller than turkeys. Their neck is straight, and a little longer in proportion than a turkey's when it lifts up his head. Its eye is black and lively, and its head without comb or cop. They never fly, their wings are too little to support the weight of their bodies; they serve only to beat themselves, and flutter when they call one another. They will whirl about for twenty or thirty times together on the same side, during the space of four or five minutes. The motion of their wings makes then a noise very like that of a rattle; and one may hear it two hundred paces off. The bone of their wing grows greater towards the extremity, and forms a little round mass under the feathers, as big

as a musket ball. That and its beak are the chief defence of this bird. 'Tis very hard to catch it in the woods, but easie in open places, because we run faster than they, and sometimes we approach them without much trouble. From March to September they are extremely fat, and tast admirably well, especially while they are young; some of the males weigh forty-five pounds.

"The femals are wonderfully beautiful, some fair, some brown; I call them fair, because they are of the colour of fair hair. They have a sort of peak, like a widow's upon their breasts [*lege* beaks], which is of a dun colour. No one feather is straggling from the other all over their bodies, they being very careful to adjust themselves, and make them all even with their beaks. The feathers on their thighs are round like shells at the end, and being there very thick, have an agreeable effect. They have two risings on their *craus*, and the feathers are whiter there than the rest, which lively represents the fine neck of a beautiful woman. They walk with so much stateliness and good grace, that one cannot help admiring and loving them; by which means their fine mien often saves their lives.

"Tho' these birds will sometimes very familiarly come up near enough to one, when we do not run after them, yet they will never grow tame. As soon as they are caught they shed tears without crying, and refuse all manner of sustenance till they die.

"We find in the gizzards of both male and female, a brown stone of the bigness of a hen's egg; 'tis somewhat rough, flat on one side and round on the other, heavy and hard. We believe this stone was there when they were hatched, for let them be never so young you meet with it always. They have never but one of 'em, and besides, the passage from the *craw* to the *gizzard* is so narrow that a like mass of half the bigness cou'd not pass. It serv'd to whet our knives better than any other stone whatsoever. When these birds build their nests they choose a clean place, gather together some palm leaves for that purpose, and heap up them a foot and a half high from the ground, on which they sit. They never lay but one egg, which is much bigger than that of a goose. The male and female both cover it in their turns, and the egg is not hatch'd till at seven weeks end. All the while they are sitting upon it, or are bringing up their young one, which is not able to provide for itself in several months, they will not suffer any other bird of their species to come within two hundred yards round of the place; but what is very singular, is, the males will never drive away the females, only when he perceives one he makes a noise with his wings to call the female, and she drives the unwelcome stranger away, not leaving it 'till 'tis without her bounds. The females do's the same as to the males, whom she leaves to the male, and he drives them away. We have observ'd this several times, and I affirm it to be true.

"The combats between them on this occasion last sometimes pretty long, because the stranger only turns about and do's not fly directly from the nest. However the others do not forsake it till they have driven it quite out of their limits. After these birds have rais'd their young one and left it to itself, they are always together, which the other birds are not, and tho' they happen to mingle with other birds of the same species, these two companions never disunite. We have often remark'd that some days after the young one leaves the nest, a company of thirty or forty brings another young one to it, and the new fledg'd bird, with its father and mother joyning with the band, march to some bye place. We frequently follow'd them, and found that afterwards the old ones went each their way alone, or in couples, and left the two young ones together, which we call a marriage."—p. 47.

Lest this narrative should be received with doubt the writer adds, "This particularity has something in it which looks a little fabulous, nevertheless what I say is sincere truth, and what I have more than once observed with care and pleasure." For my own part I consider the entire passage written with a force and simplicity that carries conviction to the mind. It appears from another passage by the same author that the solitaires fed on dates. Leguat's work contains no less than twenty-eight representations of this bird, and the great similarity that prevails amongst them is tolerably good evidence of their general faithfulness.

The remains of the solitaire appear to me far less satisfactory than those of the dodo: they consist of certain bones found in caves in the Island of Rodriguez, and their connexion with the bird described and figured by Leguat is not obvious. Our authors regard this bird also as allied to the pigeons.

The Isle of Bourbon, like its neighbours, appears to have had its brevipennate birds, but of these the records are peculiarly scanty and unsatisfactory. I will not, therefore, cite them, but conclude with a few words on the affinities of the dodo. In the first place, then, I would remark that there appears to me no absolute necessity for placing it with any known family of birds: almost all writers have fallen into what I regard as an error on this point. Mr. Vigors has certain fives that constitute what he considers the natural system in birds, and therefore the dodo must range with some established group: he fixes on the ostriches, and having done so works out a case. De Blainville, Gould and others declare it to be a vulture. Professor Owen coincides with this opinion. Reinhardt and the authors of the work before me place it in the family Columbidae, although considering it an aberrant member; and Professor Brandt pronounces it a cursorial bird in the vicinity of the plovers. Mr. Gray has expressed an opinion that the head and foot do not belong to the same bird: he regards the head as that of a bird of prey, and the foot as that of a gallinaceous bird. I would humbly suggest that all these authors are in error, and that it enters into no family as now constituted. Although I do not expect professed naturalists who have invented ornithological systems of their own to adopt my views, yet there are points on which I think we can all agree. In the first place, I think it will be admitted by all who read 'The Dodo and its Kindred,' that the vulture hypothesis is demolished. I therefore dismiss that question altogether. It then remains in evidence that the dodo has certain affinities to both the gallinaceous and gallatorial birds; that in many points, as well exhibited by Mr. Vigors, it resembles the ostriches; that in other points, equally well exhibited by Professor Brandt, it resembles the plovers; and finally, that in many points, still better exhibited by Mr. Strickland, it approaches the pigeons. Now, I would ask, is it not illogical, under such circumstances, to place the dodo in a group that shall have either *Struthio*, *Charadrius* or *Columba* for its type? But if, on the other hand, we admit that these three genera are respectively the types of groups, and that *Didus* is the type of a fourth group, then we can place *Didus* in such a situation as shall exhibit its affinities with the three others, for instance thus:—

Columba.

Charadrius.

Didus.

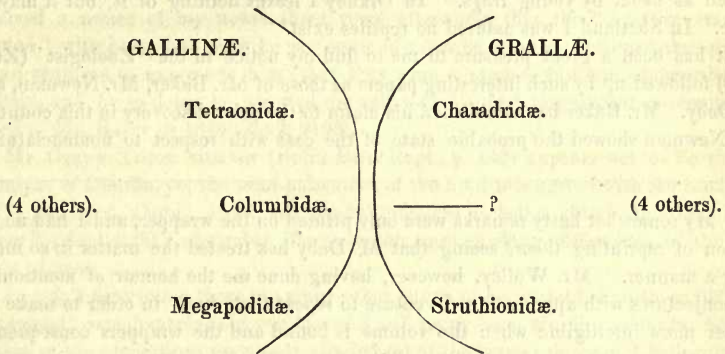
Struthio.

I should like to pursue the inquiry still a step further: there are two groups of birds greatly resembling each other, and which contain the following families, taken from Gray's 'Genera of Birds.'

First Group, Gallinæ, contains—1. Cracidæ. 2. Megapodidæ. 3. Phasianidæ. 4. Tetraonidæ. 5. Chionidæ. 6. Tinamidæ.

Second Group, Grallæ, contains—1. Charadridæ. 2. Ardeidæ. 3. Scolopacidæ. 4. Palamedeidæ. 5. Rallidæ.

Then we have two minor groups, Columbidae and Struthionidae, excluded by most authors from all the primary groups: the first of these has most affinities with the Gallinæ, the second with the Grallæ. I would therefore propose to associate the pigeons with the gallinaceous, the ostriches with the grallatorial birds. These two primary groups thus constituted seem to me to approach each other in the manner expressed below, supposing each group to occupy the superficies of a circle.



It seems to me that a seventh group is wanting to fill the hiatus I have left blank, and that *Didus* possesses all the characters which the missing group requires.

As regards the number seven, which in these instances falls in so aptly with opinions I have elsewhere expressed, I may observe that I cannot give any opinion of Mr. Gray's groups, since in many instances I am unacquainted with the birds which they contain. Still, as Mr. Gray has deeply studied the subject, and as his study, like that of Lindley on plants, and our best zoologists on insects, has resulted in a similar number, I do not think myself called on to say that I believe the coincidence *purely accidental*.

EDWARD NEWMAN.

Note on the Triton palmipes of Daudin. By JOHN WOLLEY, Esq.

I HAVE to report the existence of our recently ascertained newt in the extreme north of the island. On the 1st of August I found several females and one male in a little fresh-water peaty pool, a few hundred yards from high-water mark, on the side of the hills which rise from Loch Eribol, and on the west side of the loch. It is an

inlet of the sea, about sixteen miles to the east of Cape Wrath, in the north coast of Sutherland, celebrated for the grandeur and wildness of its scenery. The heather which clothes the hills that slope down to its banks, conceals, for the most part, the grooves and scratches made by the last of the icebergs that rounded them to their present shape; steep mounds of broken fragments may still mark the spots where they grounded, and as their soft parts shrunk and disappeared, left only their skeletons to the present day, whilst the distant head of the loch is crowned by perpendicular cliffs, backed by lofty mountains—the birthright of the red deer and the eagle. Of the newts I found in this interesting locality, the male had still his spring dress, though it seemed in a retrograde state. In that far north latitude the tadpoles of the frog were still in the water, though some of them had acquired their four legs. A month later I found some very young newts, which are probably of this species, under stones by the side of ponds, within a mile or two of John o' Groat's house or its site, accompanied as usual by young frogs. In Orkney I learnt nothing of it, but it may be there. In Shetland I was assured no reptiles exist.

It has been a great pleasure to me to find my notice in the 'Zoologist' (Zool. 2149) followed up by such interesting papers as those of Mr. Baker, Mr. Newman, and M. Deby. Mr. Baker has established his claim to the prior discovery in this country; Mr. Newman showed the probable state of the case with respect to nomenclature,*

* My somewhat hasty remarks were only printed on the wrapper, and I had no intention of reprinting them, seeing that M. Deby has treated the matter in so much abler a manner. Mr. Wolley, however, having done me the honour of mentioning my conjectures with approbation, I venture to repeat them here, in order to make the matter more intelligible when the volume is bound and the wrappers consequently destroyed.

“*Description of a Species of Newt.*”—Papers thus headed have lately appeared in the 'Zoologist' (Zool. 2149 and 2198). On reading the first of these, and various memoranda also sent me by Mr. Wolley, I felt convinced that a new species of newt had been discovered. Mr. Baker's observation that a friend of his entertains the opinion that “*Lissotriton punctatus* and *L. palmipes* are one species” (Zool. 2198), has induced me to consider the subject more carefully: I have also duly weighed Mr. Bell's opinion, that Mr. Baker's newt is a “species undoubtedly distinct, and absolutely new not only to this country but to science.” The result of my inquiry leads me to dissent from Mr. Wolley's opinion, that the newt is in any respect a novelty; from the opinion of Mr. Baker's friend, that *Lissotriton punctatus* and *L. palmipes* are one species; and from Mr. Bell's opinion, that Mr. Baker's newt is new to science. I rather incline to believe, *first*, that Mr. Wolley's newt, as well as Mr. Baker's, is the Triton palmipes of continental authors; the very name seems to carry conviction with it on this point: *secondly*, that palmipes and punctatus are perfectly and *permanently* distinct, the first *always* having palmated feet, the last *never*: *thirdly*, that Mr. Bell has unfortunately described and figured punctatus twice, *i. e.* under its proper name of punctatus ('British Reptiles,' p. 132) and under that of palmipes (Id. 139), a circumstance which possibly may have led British naturalists to doubt the distinctness of the species known on the Continent by these names. Mr. Bell's figure of Mr. Gray's Triton vittatus exhibits a hind foot semi-palmate, and would lead to the supposition that it might have been drawn from an injured specimen of palmipes, had

whilst the sagacity of his conjectures was proved by M. Deby,—at least so far as to the true name of the newt supposed to be new.

Not having seen specimens of Mr. Bell's *L. palmipes*, I cannot presume to say it is merely a form of *L. punctatus*; but I can state that from the characters given of it in his work I had supposed that some newts I forwarded to Mr. Bell were his *palmipes*, which upon examination he himself declared to be *punctatus*: this I believe I mentioned to Mr. Newman. But it is not only the *Lissotriton palmipes* of Mr. Bell that he has to re-establish in the new edition of his 'Reptiles;' it is to be hoped that he will give further characters of his *Triton Bibronii* and of *Rana Scotica*.

The specimens of the *Triton palmipes* of Daudin which Mr. Bell first received he named "provisionally" *Lissotriton appendiculatus*, believing them to be a new species, until, in a consultation with Mr. Gray, he was induced to consider them a variety of *punctatus*, an opinion which the gradual disappearance of the most obvious characters in confinement encouraged him to continue to indulge, and it was not until he received a notice of my newts three years afterwards that the "question was reopened" with him; but when he saw some of them he at once confirmed the opinion I had ventured to express to him, that they were a species hitherto undescribed in Britain, and by so doing he asserted the value of his first impressions as communicated to Mr. Baker in 1845 (*Zool.* 2198).

Mr. Gray's *Triton vittatus* (Bell's *Brit. Rept.*, p. 132) appears not to be the *T. palmipes* of Daudin, yet the semi-palmation of the hind feet agrees with the condition of *T. palmipes*, *Daud.*, whilst the caudal filament is being absorbed. The "tail pieces" (*Zool.* 2231) admirably illustrate the most striking differences of the two kinds of newt.

In a full description there are many other points to be noticed than those hitherto mentioned: one that might be overlooked I will name here, viz. the colour (as well as certain of the proportions previously alluded to) of the bones; they are, I believe, more yellow in *palmipes* than in *punctatus*. The difference in size of the two newts does not appear to me so very marked as M. Deby would indicate, except in moor-land, where, as far as I have observed, *palmipes* is smaller than elsewhere, and less bright and distinct in colour and markings, and with its vernalia (we want a proper word) less developed. M. Deby's parallel tables are very useful, and put the matter in a clear light; if he had added a description of *T. alpestris* it would have conferred an additional obligation on those of us who have a difficulty in meeting with the works of the continental erpetologists. The females of *T. palmipes*, *Daud.*, have not yet been described in the 'Zoologist.' When compared with the females of *T. punctatus*, their heads seem broader and shorter, and the toes of their hind feet are for the most part shorter; the males also have the former, but not so evidently the latter character. As to the colour, if in a genial situation, the belly is usually a delicate milk-and-water white, tinged more or less with yellow towards the middle line; the back and sides of the body and tail are of a dark olive-green, and in some, particularly very

not Mr. Gray, in his description of *vittatus*, omitted all notice of the peculiarity of the tail, which is so marked a feature in *palmipes*. I cannot for a moment suppose this would have escaped a naturalist whose knowledge of species and ability to seize specific distinctions stands unrivalled. I therefore can only attribute the peculiar foot given in the figure to inaccuracy on the part of the draughtsman.—*Edward Newman.*

large specimens, are beautifully mottled by a net-work of lighter colour. In moorland the skin becomes harsh, and coloured more like the females of the common newt, sometimes even to the orange belly.

The several longitudinal bands of colour, and the bright and tessellated markings of the full-dressed male, I leave to abler pens to describe; but I may record that I found one specimen, the only one I had from the pond in which it was (and I mention the last fact because, like other animals, especially aquatic, it seems subject to local variety), whose tail is covered with minute spots between the two rows of larger spots which are always present, as shown in M. Deby's sketch: between these two rows there are generally some other *large* spots, varying in number in different individuals. The crests are never spotted or toothed as in *punctatus*; and though, as M. Deby says, they are generally small, yet sometimes they are considerably developed, but less so than in *punctatus*. The web of the hind foot, which seems sometimes to extend almost beyond the end of the toes, is black when in perfection, but when not so it is sometimes pale.

It is to be hoped that readers of the 'Zoologist' will kindly report more localities. In April and May newts may be caught by hundreds, with a landing net, in ponds where frogs spawn.

J. WOLLEY.

3, Roxburgh Terrace, Edinburgh,
September 8, 1848.

[I shall feel extremely obliged to any correspondent who will transmit specimens or descriptions of any of our native salamanders, distinctly stating the locality, date, and sex if known; it seems most desirable to ascertain with greater precision than has hitherto been attempted, the history, economy and synonymy of these very common reptiles. May I venture to suggest that Mr. Bell's Triton *Bibronii* may be the female of *T. palustris*, *Linn.*, a name which I think should be restored, instead of *cristatus* used by modern authors.—*Edward Newman.*]

Naturalization of Rana esculenta at Epping.—Mr. Henry Doubleday having received from Foulmire Fen some living specimens of this truly beautiful frog, turned them loose near a pond not far from his residence. They soon migrated to another pond, and there have made themselves perfectly at home. Mr. Doubleday has never seen them on land, but they may often be observed seated on the floating pond-weed, watching the Agrions and other insects which fly over the water, and occasionally leaping to catch them when within reach. A few days since I had the pleasure of watching these frogs, and would gladly have captured one to bring home, but he dived so nimbly as to elude the net. Mr. Doubleday describes their croaking in spring as being very loud and remarkable: at this season they would sometimes sit on a rail which overhung the water, and exercise their vocal powers in great style.—*Edward Newman.*

On Reptiles swallowing their Young.—A great deal of discussion has taken place in the pages of the 'Gardener's Chronicle,' on the subject of the faculty said to be possessed by vipers, of receiving into their stomachs, as into a place of refuge, their

young ones when threatened with or fearing injury: the majority of the readers and writers in such a journal are not naturalists; they know neither what to observe or how to observe it; and consequently their statements and arguments melt into thin air before the cross-examination which the mind of a naturalist is sure to bestow on them: nevertheless the discussion has not been *confined* to non-naturalists, and excellent remarks have been made by naturalists—remarks well worthy of being transferred to these pages, but which I cannot readily so transfer on account of their obvious relation to other remarks which fall under the category of *aberrant*. The somewhat dogmatical character of a naturalist's mind has a tendency to pooh-pooh the statement in question; such is my own disposition: I don't know how to believe that a young and tender animal can remain in the strongly digestive stomach of a viper and receive no injury; neither can I imagine what kind of instinct can teach the young of any animal to seek so dangerous a refuge. But I wish my readers to peruse the following statements. 1st. My late lamented friend William Christy, Jun., found a fine specimen of the common scaly lizard with two young ones: taking an interest in everything relating to Natural History, he put them into a small pocket vasculum to bring home; but when he next opened the vasculum the young ones had disappeared, and the belly of the parent was greatly distended: he concluded she had devoured her own offspring: at night the vasculum was laid on a table, and the lizard was therefore at rest; in the morning the young ones had reappeared, and the mother was as lean as at first. 2nd. Mr. Henry Doubleday, of Epping, supplies the following information: a person whose name is English, a good observer, and one as it were brought up in Natural History, under Mr. Doubleday's tuition, once happened to set his foot on a lizard in the forest, and while the lizard was thus held down by his foot he distinctly saw three young ones run out of her mouth: struck by such a phenomenon he killed and opened the old one, and found two other young ones in her stomach, which had been injured when he trod on her. In both these instances the narrators are of that class who do know what to observe and how to observe it; and the facts, whatever explanation they may admit, are not to be dismissed as the result of imagination or mistaken observation.—*Id.*

On killing Worms before using them as Bait for Fish.—Persons who employ worms for angling, and who dislike using them for that purpose in a living state, may be glad to know that a little common salt sprinkled on a worm will destroy life very quickly, and without rendering the bait unsuitable for the fish, or at all events for the following species of fish, which I have seen so caught, viz., common trout, perch, roach, rudd, dace, gudgeon, minnow, and sharp-nosed eel.—*J. H. Gurney; Easton, near Norwich, September 1, 1848.*

Productive Eggs of a Female of Smerinthus ocellatus taken from the Parent after Death.—Having understood that it was a generally received opinion, that eggs taken from a female insect after death would not hatch, I beg to state that having captured a worn *Smerinthus ocellatus*, in May, I took a quantity of eggs from her two days after death, and that they all hatched in about forty hours after those she laid before

death. I tried the experiment with a *Ligustri* and *Tiliæ*, taken at the same time, but did not succeed. They (the two latter) were beautiful specimens, and most probably had not been *in coitu*.—*J. Johnson*; 27, *Kensington Square*, August 26, 1848.

Hermaphrodite Specimen of Smerinthus Populi.—Between the 9th and 17th of August of this year, we have bred twenty specimens of *Smerinthus Populi*, which had remained only five weeks in chrysalis. One of these was a fine hermaphrodite specimen, which came forth on the 13th of August. The left side of this specimen has the characters of the male, and the right those of the female; the left side of the body is one-eighth of an inch longer than the right, which, however, is of the greatest size; the left wing is of a dark colour, and is one quarter of an inch shorter than the right, which is of a light colour; the antennæ also are different. We have also obtained two broods of caterpillars from the above specimens. These were hatched on the 21st of August.—*W. H. and C. H. Longley*; 1, *Eaton Place, Park Street, Oxford Street*, September 6, 1848.

On the diseased Larvæ of Plusia Iota.—In my observations on the diseased larvæ of *Plusia Iota* (*Zool.* 2033), I assumed that all I had met with belonged to this species, which further experience has shown may not have been the case. Last autumn I had twenty-one young larvæ of *Iota*; ten I sent to Mr. Henry Doubleday, and retained the rest: of these, eight survived the winter, and recommenced feeding about the beginning of April; and to my surprise and delight, before the end of June each had produced a perfect moth, never having exhibited the slightest symptoms of disease. I had great numbers of young larvæ of *P. percontationis*, and though many were alive in spring, yet they looked very sickly, and only twenty ever fed at all—again showing that *comparatively Iota* is the more hardy. I have several times bred *percontationis*, and never knew it diseased before this year, when two out of the twenty were affected in apparently the same manner as *Iota* had previously been. Not caring about *percontationis* I did not separate the diseased from the healthy, in order to ascertain if the disease (whatever it might be) was infectious, which did not appear to be the case, for the two that were attacked died, and the rest produced moths. A further motive for keeping the diseased larvæ was to watch the appearance they might afterwards assume; and this was so exactly like that of the diseased *Iota*, that no one, I think, could have distinguished them; so that, as I have before intimated, the diseased larvæ I had met with in previous years were not, probably, *all* of the same species. Perhaps I ought to say that the larvæ of the two species, in their healthy state, are very much alike: the only difference I could perceive was, that *Iota* is a somewhat deeper green, and has the lateral lines pure white, which in *percontationis* are yellowish. I had a larva of *chrysis* this year affected in precisely the same manner, and it died like the rest; so that three out of the four *Plusiæ* that occur here appear subject to the same disease. I have not yet noticed it in *Gamma*. I saw numbers of the diseased larvæ again this summer, but the moths of this genus were rare. I did not see a single *Iota*, only three or four *chrysis*, and seven or eight *percontationis*. I thought it strange that, of so many larvæ of *Plusiæ* as I had previously met with, not one should have proved healthy, though in numbers of them there was no *appearance* of disease at the time. I was therefore curious to know something of their habits, and, with this view, planted such weeds as I found them upon, and over these placed a large cage of gauze wire, into which I put my larvæ; and though I knew there were so many in that limited space, I scarcely ever saw one; which leads me to suppose that they do not, in their natural state, expose themselves

until they have become diseased. When the larvæ spun up they invariably placed themselves *under* a leaf, and slightly drew down the edges in such a manner as to require a well-practised eye to detect them in a state of liberty, which may account for their being so seldom found. As the object of this note is to prevent any erroneous conclusions being drawn from my former communication, it may not perhaps be deemed unworthy of a place in the 'Zoologist.'—*W. Turner, M.A.; Uppingham, September 1, 1848.*

Occurrence of Peronea permutana at New Brighton.—On the 13th ult. I took three specimens of this insect on the wing, at dawn of day, at New Brighton, flying in company with *Acleris aspersana* over a species of wild rose, which grows there in profusion. I sent a specimen to my friend H. Doubleday, Esq., supposing it to be an extraordinary variety of *variegana*, when he kindly informed me that it was not that insect, but *permutana*, that it is local but common on the Continent, and that it has never been recorded as British before, though doubtless it has been overlooked, being so much like *variegana* in the markings. Mr. Doubleday says that it is always larger than *variegana*, but varies even more than the latter species. The ground colour of my specimens is yellow or brownish yellow.—*Nicholas Cooke; Warrington, September 11, 1848.*

Capture of Micro-Lepidoptera.—I have ventured to send you an account of some captures of Micro-Lepidoptera, chiefly belonging to the genus *Argyromiges*, of which I have taken this year three species new to Britain; two of them, I believe, unknown on the Continent: these I have named *salicicoella* and *viminiella*. The third species, Mr. Stainton informs me, is the *Amyotella* of Duponchel: my specimen, taken on August 18th, is singularly beautiful. Subjoined is a figure of a wing of each. I



Argyromiges Salicicoella.



A. viminiella.



A. Amyotella.

must leave the description to abler hands, and may, perhaps, prevail on Mr. Stainton or Mr. Douglas to supply the deficiency. I also captured a pretty *Microsetia*, the *intimella* of Zeller, easily distinguished by its white spot in the centre of the inner margin of the primary wings, which are black, and by its *yellow* antennæ: together with this I took another species, also considered new, but about which I am not certain: these two species rest on the higher branches of the willow, and may be obtained by brushing them with a net: I secured about sixteen of each. *Argyrossetia semifasciella* rests on the lower leaves of the willow: I captured upwards of a hundred by holding my net just below the branches that I shook: they drop motionless. *Argyromiges spinolella* flies out of the willows when shaken, and is taken on the wing: I secured a great many of this very lovely species, and have still a few remaining, which I shall be most happy to send to any Micro-Lepidopterist who may not possess the species. *Eidophasia transversella* flies late in the evening, very near the ground, and appears much smaller than it is: kneel down and catch it as it flies. I was late in discovering its habits; hence my specimens are worn: they appear to be all males. In some examples the bar is interrupted in the middle; in others it does not extend much beyond the centre; and I possess a specimen bearing only a small spot on the inner margin of the wing: the antennæ at once distinguish the species. The species which I found

to frequent the oak are,—*Argyromiges lautella*, *Messaniella* (found also on the elm), *Heegeriella*, *Sircomella*, and *Gracillaria substriga* (*Coriscium quercetellum*, Zeller); this I also reared from the larvæ. Off whitethorn hedges I took *Emberizæpennella* (one), *tristrigella*, *trifasciella*, *Boyerella*, *cratægifoliella*; one *elatella* (?) and one *corylifoliella* I beat out of a hazel; one *hortella* out of a beech; and *alnifoliella* I captured on the wing. I need scarcely add that most of the *Argyromiges* appear in May, and are double-brooded.—*John Sircom, Jun.; Brislington, August 30, 1848.*

Note respecting Yponomeuta sedella.—This insect, *sedella* (Tis.) Tr. Z., differs essentially from all its congeners in being double-brooded: the first brood appears in April or May, and the second in August. The larva feeds on the orpine (*Sedum telephium*), a fleshy-leaved plant, which grows on chalky and gravelly soils. In the first week of October, 1836, I met with a brood of larvæ of *Yponomeuta* on the *Sedum telephium*; and being rather surprised to see these larvæ at that time of year, and on such curious food, I took them, in hopes of rearing something strange, but was rather disappointed on breeding, early in February, some dirty gray ermines, which to my inexperienced eyes appeared to be only the common padella; and I consequently threw them away. I have now *not the slightest doubt* that the insects thus contemptuously thrown away were actually *sedella*, the distinguishing character of which—the black patch in the cilia—being a mark which would then readily escape my notice. My object in writing this is to call attention to the right time to look for the larvæ, the first week in October (the larvæ were then very nearly full grown); as I make no doubt if those who have any *S. telephium* growing near them would only search at the right periods (the other period being most probably June or July), the insect would be readily obtained, and become an inmate of all our cabinets.—*H. T. Stainton; Mountsfield, Lewisham, September 4, 1848.*

Note on Gracillaria substriga, Haw. (*Coriscium quercetellum*, Zeller).—This species, rarely met with elsewhere, is not uncommon among the oaks at Brislington, appearing in April and May, July and September. I have not yet discovered the pupæ in their natural state, probably owing to the larvæ quitting the leaves prior to their undergoing this change. This I infer from the fact that the caterpillars of those which I reared formed their delicate webs in the corners of the box. I took the larvæ of my July brood at the end of May, and the first perfect insect appeared July 1st; those of the September brood at the end of July, the fly appearing September 7. Allowing the larvæ to have been hatched some time before I took them, we may calculate six weeks as the period they take from this state to that of the perfect moth. My first brood I supplied occasionally with fresh leaves; my second not, and I perceived no difference in the size of the specimens; indeed my September brood is singularly fine. Subjoined are the several days on which I took specimens.

First Brood. April 23, May 2, 5, 8, 9, 10, 11, 12, (23, 24, 29, June 2, worn).

Second Brood. July 1, 8, 10, (25, 27, 30, August 15.)*

Third Brood. September 7, 9, 10, 11, 12, 13.—*John Sircom, Jun.; Brislington, September 21, 1848.*

* Captured in 1847.

Additional Remarks on the Genus Argyromiges. By H. T. STANTON, Esq.

Two of Zeller's species of *Lithocolletis* have been added to our list as British during the past season,—*Amyotella*, Dup. (see Zool. 2080, note, A, No. 4) and *scopariella*, Heyden (see Zool. 2080, note, B, No. 24); and besides these, two others, not noticed by Zeller, have been detected by the untiring energy of Mr. Sircom: full descriptions of these shall appear as a supplementary paper ere long; but as it is very probable it may not be ready to be published in the 'Zoologist' this year, I send this notice, with a few remarks on sundry errors in my Monograph, and also notices of such species as I have myself met with.

1. *lautella*. I beat a single specimen out of an oak at Lewisham, August 6th: it is a variety, the first pair of opposite spots being united and forming a fascia.
2. *Schreberella*. I took a single specimen at Lewisham on the 12th of August, beating it out of oak.
3. *ulmifoliella*. I took two specimens on the Dartford Heath fence, April 19th; I beat one out of hedges at Lewisham, May 8th; one (probably from birches) at Wickham, May 9th; and took a wasted one on the Beckenham fence, on the 18th of May.
7. *Emberizæpennella*. I have taken only two specimens; one on the 11th, the other on the 30th of May; both beaten out of honeysuckle at Lewisham.
8. *tristrigella*. I took two specimens on the Beckenham fence, on the 18th of May.
9. *Frælichella*. I beat one out of a hedge at Lewisham, May 25th.
10. *trifasciella*. I beat one out of honeysuckle, on the 30th of May, at Lewisham; and took a wasted one on the Beckenham fence, on the 9th of June.
- 11, 12. *Messaniella* and *quercifoliella*. Abundant throughout the summer, principally on oaks; but I have often beaten them out of very dissimilar food, where no oak was near. I beat two specimens of *Messaniella* out of buckthorn, in May. I have bred both these species from oak leaves.
- 15, 16. *pomonella* and *pomifoliella*. Every specimen of these species that I have seen I have taken; and hope, by careful examination of them, to throw more certain light on their specific distinctness: among them are some which are probably new species.
18. *Junoniella*. Of this species I have taken four; one flying near an oak, May 5th; one beat out of hawthorn, May 6th; another on the 8th; and the fourth on the 10th of May, likewise out of hawthorn.
19. *alnifoliella*. Of this species I beat about twenty out of some alders overhanging a small stream near Maltby, Yorkshire, July 21st.
20. *Cramerella*. Abundant in May and June, on oaks; in August more sparingly.
21. *tenella*. The insect figured and described is not the *tenella* of Zeller, but his *Heegeriella*. Its synonymy should therefore stand thus:—

Heegeriella, Zeller, Linn. Ent. i. 233, f. 28.

tenella, Stainton (non Z.), Zool. 2152.

It has a dark basal streak, and the apical spot is oval. Of this species I have

taken eight specimens; four in the spring and four in August; all off oaks at Lewisham.

tenella, Zeller, Linn. Ent. i. 236, f. 30.

hortella, Bent. Mus.

has no dark basal streak, and the apical mark is a line or streak, not a spot. This species I have not met with: one has been taken by Mr. Ellman at Batel (I saw his specimen).

24. *sylvella*. Common on maple in May, and sparingly in August. I bred several specimens from the leaves of the maple.
25. *comparella*. I beat a single specimen out of a hawthorn hedge at Lewisham, on the 3rd of May: there was no poplar near.
26. *corylifoliella*. I have taken several specimens of this species in May, June and August, principally from oaks.
28. *scitella*. I beat several specimens from hawthorn, at the end of June and beginning of July.
29. *spartifoliella*. This species swarmed on broom (*Spartium scoparium*) near Airthrey, where I had the pleasure of taking *Lithocolletis scopariella*, *Trifurcula immundella* and *Depressaria assimilella*, on the 15th and 16th of July.
30. *cerasifoliella*. Here again we have two closely allied species confounded, and most of the descriptions and figures of the insects are so unsatisfactory, that it is almost impossible to say to which species they belong. The synonymy as corrected will stand thus:—

suffusella, Zeller, Linn. Ent. iii. 266, Pl. 2, f. 32.

tremulella, Fischer von Röslerstamm.

cerasifoliella, Dup.?

unipunctella, St.?

Frequents *poplars*; has no basal dark lines. Of this species, which I did not previously possess, though I observe it is in most collections, I took a specimen off a Lombardy poplar on the 25th of June, and a second off the same tree on the 17th of September.

saligna, Z., Linn. Ent. iii. 270.

cerasifoliella, Sta. (Zool. 2158), Hub.?

unipunctella, Wood's fig. 1335.

Frequents *willows*; has two dark lines proceeding from the base, and meeting rather beyond the middle of the wing. This is the species I have been in the habit of taking in April; I have not met with it this year.

31. *Clerckella*. Of this species I beat one out of firs at Lewisham, June 15th; a second out of a mixed hedge on the 24th of August; and a third out of a fir tree at Wickham, on the 30th of August.
34. *Boyerella*. Not uncommon at Lewisham, on elms, at the end of May.
35. *cratagifoliella*. Sparingly, at the end of May, on oaks, elm and hawthorn.
36. *Sircomella*. This name must sink, the species being described by Zeller under the name of *ulmella*, in the third volume of the 'Linnæa Entomologica,' which was

in this country before the appearance of the July number of the 'Zoologist.' The synonymy will therefore stand thus :—

ulmella (Mann), Zeller, Linn. Ent. iii. 288.

ulmella, Bent. Mus.

Sircomella, Sta. (Zool. 2162).

cuculipennella, var. δ , Haw.

ulmifoliella, Sircom in lit.

This species has been very common with me this year, in May, June and August, on oaks and hawthorn (not on elm).

40. *quercetella*. This name also must drop, the insect being described by Haworth under the name of *substriga*, as mentioned by Mr. Stephens (Zool. 2078). The synonymy will then stand thus :

substriga, Haw., St.

quercetella, Z. (non Dup.), Sta. (Zool. 2164).

Curtisella, Dup.

I beat a single specimen out of a low oak at Lewisham, August 12th. This insect certainly belongs to the *Gracillaria* group, though its possession of an apical hook distinguishes it from all other species of that genus hitherto detected in this country. Three other species with this peculiarity are known on the Continent.

H. T. STAINTON.

Mountsfield, Lewisham,
September 21, 1848.

Capture of Lixus bicolor, Hypera fasciculata, &c.—Extending for six or seven miles on the north of the town of Deal from Sandown Castle, and bordering on the sea, from which it is protected by a high ridge of shingle, is a sandy tract of uncultivated land, covered with herbage and plants of various kinds, which—as respects the nature of the soil, its ridges and pits of sand, its plants, and the general character of the insects found there—reminds me somewhat of the Chesil Bank in the Isle of Portland. Nor is it inferior (while it is more extensive) in its Coleopterous productions to that famed locality; for not only several species, which have hitherto been found only near the Chesil Bank, occur here,—as *Masoreus luxatus* and *Limobius mixtus*,—but others also, which have been considered of great rarity, may be taken in abundance. During the first few hours I spent in this locality, on the 7th of August, I captured on the *Erodium cicutarium*, or rather, I should say, half-buried in the sand beneath the plant, numerous specimens of *Hypera fasciculata*, a species which I understand had not been taken for many years; and on the same occasion, as well as during subsequent visits, I had the good fortune to discover, under the same plant—reposing on the surface of the sand, in a seemingly inert state—that very rare and highly-prized *Curculio*, *Lixus bicolor*, which has hitherto been unique in the cabinet of Mr. Stephens. Here, too, several species, which have heretofore been taken only sparingly at a time, may be met with in considerable numbers, as *Gronops lunatus*, *Sarrotrium muticum*, &c. On a dead hedge, which separates this wild sandy district

from the cultivated country, *Acalles echinatus* may be taken in abundance, and with it, though less plentifully, that rarer species *Roboris* (*Curtis*), of which not more than three or four specimens had previously been taken in this country. Here, also, Mr. Walton (who, with the Rev. H. Clark, was induced to join me in exploring the riches of this charming locality) detected, and will shortly describe, a new species of *Tychius*. It occurs sparingly on a grassy bank. In the same spot Mr. Clark and myself each captured a single specimen of a new *Nedyus*.

The following is a list of the more striking species which within this last month have occurred in this rich locality; and Coleopterists will admit that, though brief, it is by no means meagre in point of interest, as regards the character of the insects therein recorded.

<i>Dromius fasciatus.</i>	<i>Hypera murina, &c.</i>
<i>Dyschirius thoracicus.</i>	<i>Limobius mixtus.</i>
———— <i>politus.</i>	<i>Lixus bicolor.</i>
<i>Calathus crocopus.</i>	<i>Apion minimum.</i>
<i>Amara erythroa.</i>	———— <i>seniculus.</i>
———— <i>spretæ, &c.</i>	———— <i>pubescens.</i>
<i>Bradytus consularis.</i>	———— <i>Curtisii.</i>
<i>Harpalus serripes.</i>	———— <i>vernale.</i>
———— <i>tardus.</i>	———— <i>brevicolle.</i>
———— <i>anxius, &c.</i>	———— <i>nigritarse.</i>
<i>Masoreus luxatus.</i>	———— <i>difforme.</i>
<i>Notaphus ustulatus.</i>	———— <i>dissimile.</i>
<i>Lopha pusilla.</i>	<i>Choragus Sheppardii.</i>
<i>Nedyus Crux</i> (<i>Walt.</i>), n. sp.	<i>Thyamis femoralis.</i>
———— <i>Echii.</i>	———— <i>ochroleuca.</i>
———— <i>ruficus, &c.</i>	<i>Sarrotrium muticum.</i>
<i>Amalus scortillum.</i>	<i>Crypticus quisquilius.</i>
<i>Acalles Roboris.</i>	<i>Platydemæ ænea.</i>
———— <i>echinatus.</i>	<i>Salpingus ruficollis.</i>
<i>Tychius nigrirostris</i> (<i>Walt.</i>), n. sp.	———— <i>planirostris.</i>
<i>Gronops lunatus.</i>	<i>Sphæriestes 4-pustulatus.</i>
<i>Hypera fasciculata.</i>	

—*J. F. Dawson, LL.B.; Ramsgate, September 12, 1848.*

Occurrence of Badister peltatus in England.—A single specimen of this beetle, taken by Mr. Ingall near London, is in that gentleman's cabinet. It has little similarity in figure and none in colouring to the other British species of *Badister*, its habit and figure being that of a *Trimorphus*. Believing it an undescribed species of that genus, I described it as new in the fifth volume of the 'Entomological Magazine,' as under: "*Trimorphus Erro*. The antennæ are long, slender, and nearly black, the apical portion paler and somewhat downy, as usual in the family; the basal joint is elongate, and is nearly white both at its base and apex; the second joint is pale at the apex only: the head is black and smooth: the prothorax is nigro-æneous, obcordate, narrow, and truncated posteriorly, having a deep longitudinal median line, and a large and deep fovea in each posterior angle: the elytra are nigro-æneous, regularly and somewhat deeply striated: the legs are piceous (*Ent. Mag. v. 489*).—*E. Newman.*

Occurrence of Badister peltatus in England.—Immediately after the publication of the October number of the 'Zoologist,' Mr. Samuel Stevens informed me, in allusion to the paragraph on the preceding page, that he possesses two specimens of *Badister peltatus*, taken by himself in the neighbourhood of Hammersmith. I hope entomologists who find they possess this rare insect will announce the fact in future pages of this work.—*Edward Newman*; October 5, 1848.

Description of Leptinus testaceus, a recently-discovered British Coleopterous Insect.

Family.—SCAPHIDIIDÆ.

Genus.—LEPTINUS, Müller.

Maxillary palpi filiform, third joint cylindric, fourth shorter, conic. Antennæ inserted under the lateral margin of the head, subfiliform, basal joint almost double the length and thickness of the rest; joints subcylindric, gradually longer from the second to the sixth, four last gently thicker and shorter, ultimate subovate, laterally flattened. Body oval, much depressed; elytra soldered together; wings none.

Sp.—L. TESTACEUS, Müller.*

Testaceous yellow, somewhat shining, very thickly and finely punctulate and waved throughout, with a fine, short, appressed, shining pubescence. Antennæ half as long as the body. Head depressed, slightly transverse, closely inserted into the thorax; eyes apparently wanting. Thorax very much broader than the head, transverse, much narrowed in front, depressed, very thickly and finely punctulate and waved, with some irregular, obsolete, larger punctures, of which two or three are near the base; the sides rounded; the apex slightly bisinuate; the base slightly arcuate, truncate, its edge somewhat paler; hinder angles acute. Scutellum rather large, triangular, thickly and closely punctulate. Elytra closely applied to the thorax, of the breadth of its base and scarcely twice its length, much depressed, sides straightish, rounded at the apex, very thickly and finely punctulate and waved, with—in certain lights—faint indications of regular, longitudinal, linear depressions, representing lines and interstices. Tibiæ, anterior and intermediate, thicker at the apex than the elongate posterior; anterior tarsi slightly dilated.

In the specimen described there are two dark approximating points, resembling ocelli, on the hinder lobe of the right side of the head, behind the antennæ; but as they appear on one side only, they may be accidental impressions.

For this interesting addition to the British Fauna naturalists are indebted to Mr. E. W. Janson, who found it under chalk flints at Boxhill, near Dorking, on the 28th of May of the present year.—*James Hardy*; *Penmanshiel, near Cockburnspath, October, 1848.*

* L. flavo-testaceus, subtilissimè creberrimè punctulatus; elytris apice rotundatis. Long. corp. $1\frac{1}{8}$ lin.

Müll. Germ. Mag. ii. 207. Germ. Faun. Ins. Europ. 4, 9. Heer, Fn. Col. Helv. i. 373.

A Fauna of Melbourne. By JOHN JOSEPH BRIGGS, Esq.

THE parish of Melbourne is situated in the southern division of the county of Derby, about eight miles from the county town, and is 3463 acres in extent. The surface has little to distinguish it from the neighbouring parts, being of that undulating, quiet character—half pastoral, half arable—which marks the landscapes of South Derbyshire. Our larger woods occupy about 150 acres, but the surface is pleasingly varied with small copses, holmes, and hedgerow timber. Our small valleys generally cradle some rivulet or stream, which, after watering the pasture lands, falls into the Trent. This river forms the northern boundary, and winds, like some gigantic serpent, through our meadows, and owing to its noble breadth is very attractive to wild fowl. Altogether the surface of this parish is most favourable for the study of Natural History, and the lover of the beautiful cannot but be delighted with the rich scenery which is everywhere presented to his eye. Our fauna, however, is much more limited than formerly, owing to the drainage of marsh lands, the grubbing up of gorse and fern, and the closer trimming of hedgerows; but still it is very extensive. The changes it has undergone will be noticed more particularly as the species of animals to be described come under review. It will be necessary to state that all individuals mentioned in the following list must be considered as having occurred in this parish or on its borders, unless the contrary is distinctly pointed out, and that the observations on their habits, manners and character, refer to them as observed here.

Pipistrelle (*Vespertilio* ———). My journals record having noticed this bat flying about at mid-day on the following days, October 21st, 1843, and December 8th, 1843, being very cold; but I find that they come forth during every month in the year, when the air is mild and genial and the wind south or south-west. The bats in Melbourne Church bring out their young about June 17th. “April 14, 1844.—Bats love to feed just on the verge of night. I have noticed one which has flitted about every tolerably warm evening since last autumn. About the second week in December, when darkness came on about four o'clock, A. M., this animal appeared about three o'clock. As the days lengthened he gradually made his appearance a little later, and at the end of February five was his hour. Now (April 14th) the dusk falls about eight, and he generally appears near seven o'clock. This I have ascertained by frequently minuting him. The twilight seems his favourite hour; and either the small nocturnal insects upon which he feeds appear just at that point of time, or his vision is peculiarly adapted for the dubious light, for he is rarely seen abroad in open day, and generally retires as the air grows darker.”

Long-eared Bat (*Plecotus auritus*). Seen occasionally. I have observed that when feeding the range which they take in the air is more elevated than that of the pipistrelle, and that they sweep down at intervals (probably strike at an insect) as a falcon stoops to a bird. In winter they have been found huddled together, four or five in a lump, in crevices of the old trees, in Calke and Donnington Parks; and I was once shown five individuals which had been taken from a barn-roof near Mickleover.

Hedgehog (*Erinaceus europæus*). Hedgehogs lie dormant rather more than one-fourth of the year, retiring the last week in November and appearing the first week in March. When found in winter they are encased in a coat of dry leaves, about half

an inch thick, which adhere to the prickles in so firm a manner that the animals seem to have rolled themselves amongst them: over this is another loose, warm covering of leaves. When this outer covering is removed the animal looks exactly like a lump of dried foliage. I have only once known a hedgehog killed in winter, out of his hybernaculum: the season was remarkably mild, and he had either never laid himself up at all or was tempted out by the softness of the atmosphere (See Zool. 714).

Mole (*Talpa europæa*). My journal has the following note. "February 15, 1845. The mole does *not* (as the great Linneus asserts) lie dormant during the winter, neither in frosts does he cease to undermine the ground; for I have observed, to my surprise, that he can work in the severest weather, and push the soil through the frozen surface. This proceeding I have noticed some dozens of times this winter, even when the weather has been so severe as to freeze over the Trent; but I find that when the surface of the earth is very hard, the mole, in order to save himself labour, sometimes brings the loose soil which he is working to the nearest hillock, and pushes it through an old hole to the surface, rather than trouble himself to make a new one through the turf, as he would do if the ground was soft. The mole also works in snows." Moles do not always abound in pastures where earth-worms are most plentiful, and their food seems restricted to the smaller kinds. We have several fields here where large worm-casts exist in such numbers as almost to destroy the herbage, yet no mole ever enters them, although they work readily in the surrounding fields. These animals mine with equal ease in either dry or swampy soils. The miry earth does not, as might be supposed, retard the movements of the animal by clogging his skin, for he comes out of such spots almost as sleek as from the drier grounds. They seem rather to avoid our stiffest loams and clays. Mole-catchers say that the male is much more cunning and difficult to take than the female. The mounds under which their nest is placed are always large, and I have seen one eighteen inches high and nine feet in circumference. Moles sometimes make their nests as early as February, but use them as dormitories until towards May, when the young are deposited. They must occasionally ascend above ground to procure blades of grasses for their nest, and to see them engaged in this operation must be a curious spectacle. They probably collect them in their mouths, in the same manner as a sow in a farm-yard does the litter for her bed. They use their runs when filled with water, if necessary. I have known them manifest peculiar obstinacy in not quitting a spot where the nest was situate, and when it was destroyed in rebuilding it, even to the fourth time. As the word 'mole' signifies a 'spot or excrescence,' probably the animal received its name from its habit of throwing up its small round hillocks, which look like spots or disfiguring marks upon the earth's surface. When above ground moles have an awkward gait, but make progress at considerable speed. When handled they make a shrill distressing noise. In water they swim well and rapidly; but if allowed to remain in that element for a very short period, life becomes extinct. They have, when above ground, a curious and particular habit of scratching themselves with their hind legs, in order to get rid of a small parasite, which proves very irksome to them. I have paid considerable attention to the mole, and have ever admired his remarkable shape and his singular instinct, and been interested in his extraordinary subterranean mode of life. I have ever found him an animal of deep interest, but I am very far from attributing to him those miraculous traits of character which are recorded by Geoffrey St. Hilaire and Mr. Jesse. Is the mole injurious or beneficial in agriculture? This is a difficult question. I have examined many moles, but never found anything in them but the remains of

insects and vegetables; and I have noticed, too, that they affect those fields most which are most subject to wire-worms. The Rev. G. Wilkins, an Essex clergyman, comes forward most ably as the champion of moles (Zool. 2009), and finds that they entirely annihilate the wire-worm. Where there is little or no wire-worm on a farm, it is difficult for a farmer to make up his mind whether to preserve or destroy them. It is unpleasant to see them in your turnip-fields, undermining the drills for a hundred yards together, and causing the plants to wither. It is unpleasant to see them in your mangold-wurtzel, burrowing under the plants, and effecting the same destruction. It is unpleasant to find them in your corn, loosening the soil at the roots, and causing it to be pulled up by the mower's scythe. It is unpleasant to have them working in your smooth pasture-lands, throwing up their unsightly hillocks, and perforating their surface like a honey-comb. It is unpleasant to have them in your irrigated fields, burrowing into the drains and embankments, and disturbing your earth-works. In a word, although I shall run the risk of calling down upon me the anger of the worthy clergyman of Essex, who says that "farmers adopt nothing till driven to it, and nothing that is new and good," I must say, that much as I admire the mole, I would, after all, rather have his "room than his company" on my land.

Shrew (*Sorex tetragonurus*). I can throw no light upon the annual mortality of the shrew. It takes place about March, when numbers are found dead in lanes and hedgerows, but without any mark of violence upon them. These animals generally make their nests in fields of mowing grass. Mowers constantly shave off the top of one when cutting down the grass, but the animal does not usually forsake it; but I have known her bestow considerable pains in shielding her young from danger. The nest is a proof of this animal's industry and skill, and worthy of admiration. It is built on the ground in a tuft of herbage, round in shape, and apparently there is no entrance to the interior (probably a fresh one is made as required, in different parts of it, and closed when no longer needed). Their nest is, as Burns would truly describe it,

"A wee bit heap o' leaves and stibble,
Which costs it mony a weary nibble."

In the autumn of 1842 I met with an incident relative to the character of this animal worth recording. I was rambling by the margin of a patch of sedge, when I discovered the nest of a shrew mouse close to my feet. It was about the size of a cricket-ball, and contained five young ones. I took it up, and having satisfied my curiosity replaced it in a careless manner; but going to it a few days afterwards, I observed that the dam had closed up the aperture which I had broken, and drawn the blades of long grass over the nest, so as to cover the minute habitation in a most admirable manner. Whenever I passed that way I took a peep at the group, to watch their growth; but was not a little surprised, after a few visits, to find the nest missing. I examined the neighbourhood minutely, and found, to my surprise, that they were located about fifty yards further. The dam, no doubt not liking my frequent interruptions, had removed her charge to a more secure place,—an example of the care and tenderness which these minute animals display towards their young.

Water Shrew (*Sorex fodiens*). I am not aware that this animal has been captured in Derbyshire by any one except myself. Glover mentions it in his Mammalia of this county, but records no capture. Three specimens have come under my notice in this parish. One was taken alive, November 23rd, 1845, at some distance from water,

when grubbing up an old hedge. It lay concealed in a very snug manner, nestled amidst the smaller fibrous roots, and, I imagine, had sought that place as a retreat against the cold. It made little effort to escape, appearing half dormant; but when handled, bit my finger very savagely, through a thick leather glove. When kept in confinement it refused to eat, and died in a few days. December 27, 1845.—Noticed one travelling over the snow. September 11, 1848.—A third specimen taken alive amongst some stubble in a barley-field: bit very savagely: taken some distance from water.

Oared Shrew (*Sorex remifer*). One captured alive March 30th, 1848, in a small rivulet bordered with rank herbage. It dived with ease and rapidity into the water, and ran with such nimbleness amongst the rushes as for a quarter of an hour to baffle the endeavours of four persons to secure it. When caught it showed a most pugnacious spirit, biting through the skin of a labourer's hand, which is hard and horny, and drawing blood. When pursued it uttered a shrill cry, like the common shrew. I am not aware of any other individual having been taken in this county.

Before concluding my account of the shrews, I think it advisable to mention a specimen which was taken in September, 1848. It was smaller in size than the common shrew, similar in shape, but differed materially in having a light sandy-coloured band or broad stripe on each side, shading down gradually to its belly, which was darker than the common species. This band was so conspicuous as to arrest the attention of a labourer who was engaged in husbandry, and to induce him to kill it. When I saw it the flesh was in a state of decomposition, and after taking a description of the colour, &c., it was put away as useless. This description I submitted to Wm. Yarrell, Esq. (to whom I have ever applied in cases of doubt, and always received the most polite attention), who suggests that it "perhaps was a species new to the British Catalogue." I have therefore thought well to mention the circumstance, in order that other naturalists may look out for the species or throw some light upon it.

Badger (*Meles taxus*). See Zool. 615.

Otter (*Lutra vulgaris*) See Zool. 714. I have never known this animal to breed here, but it occasionally does so on the river Soar, about eight miles distant. A person who has frequently taken the young describes the female as a revengeful animal during the breeding season, and gave me an account of one which had wounded his leg so severely with its teeth that he suffered some months from the effects.

Weasel (*Mustela vulgaris*). In weasel "runs," along hedgerows, I sometimes find the remains of redwings and fieldfares, which I think are taken by these animals, as they roost on the ground. June 11, 1844.—A small terrier killed a weasel with a field-mouse in its mouth: being a doe, the animal was probably carrying the prize to her young. It was a curious sight to see her trotting along the bank-side, carrying her burden in as clever a manner as a cat would do in a similar situation. I imagine that when a party of weasels is seen (as I have occasionally noticed them) in pursuit of a hare or rabbit, it consists of the old pair and their young, the former of whom are perfecting the latter in the art of taking their own food. January 29, 1845.—I noticed an individual which had taken up his abode in an old barn, and made himself a very snug retreat from the cold, by getting a mass of soft chaff for his bed. He came out on most open days about the neighbouring stacks and buildings, or took short excursions through the orchards and gardens, at some hundred yards from his nest. He

seemed to live almost entirely on mice, and I considered him in that respect as serviceable as a cat.

Stoat (*Mustela erminea*). February 4, 1844.—Noticed a most beautiful pied animal of this species, which was amusing himself on the bank of a brook by chasing a water campagnol, which he lost near the spot where I stood. He was not daunted by my appearance, but came up to me within a couple of yards, when he made a cast like a fox-hound, and in the most brilliant style, but failed in hitting off the scent. He then, with a bustle and activity truly astonishing, crossed the brook, not by swimming nor by a bridge, but by ascending an alder-bush to the top twig, and then leaping like a squirrel to another on the opposite bank, when he regained the scent, and coursed away at wonderful speed. I have records of seeing *pied* individuals of the weasel [? stoat, *Ed.*] on February 4th, February 7th, February 12th, 1845, and March 1st, 1846. Are these merely *varieties* of the common species, or are they individuals changing from their winter to their summer coats?

Polecat (*Mustela putorius*). All but banished from our 'Fauna Melbournensis.'

Wild Cat (*Felis catus*). There are in our largest woods cats of large size and brindled colour; but whether they are of domestic origin and strayed away, or bred wild, is difficult to say, but I think the former.

Fox (*Canis vulpes*). Of all the wild animals that roam the forest or the field, none have so much money expended upon their destruction as the fox. It has been ascertained (I think by Nimrod) that within the circumference of twenty miles round Melton, £100,000 are expended annually upon the chase,—*i. e.* upon hounds and horses, with men and grooms to manage and wait upon them. Upon the same tract of country, perhaps not more (but probably less) than fifty brace of foxes are killed in a season, so that, according to this calculation, it requires the enormous sum of £1000 to kill a fox in a sportsman-like manner. As Melton, however, is the metropolis of English fox-hunting, this must not be taken as a sample of hunting expenditure in all localities. When the Donnington covers have been drawn several times, the foxes betake themselves to the hollow trees, and endeavour to secrete themselves by lying curled round in the holes and crevices. I remember a brace once, in the same covers, climbing a tree nearly twenty feet high, which grew in a slanting direction, and hiding themselves amongst the thick branches, whilst the hounds were beating the brushwood beneath. The bitch will display considerable affection for her young, and even—if hard pressed by hounds—reluctantly leave the covert where they are situated. On April 26th, 1842, the Marquis of Hastings' hounds were drawing Staunton Springs, —a large wood near Melbourne,—and found a fox, which for more than an hour defied all effort to make it break. Several covers having been drawn blank, the huntsman was anxious to get it away, and at last got clear off, but only for the fox to return again; and so, supposing it was a bitch that had cubs, the hounds were whipped off. This proved to be correct; for some pedestrians, who had been following the hounds, stumbled upon the nest by accident, and brought the cubs to show the hunters, but afterwards took them back, and they were eventually reared in the wood. The nest was placed at the bottom of a thick honeysuckle bush, through which luxuriant herbage had crept, and afforded excellent concealment. A hole, about three feet in circumference and three inches in depth, was scooped out of the bare ground, and round the edges of the hollow were placed dead oak and beech leaves, which served in some measure as a protective outwork. The young were seven in

number, shaggy and rough in appearance, and four of them had the ends of their brushes ornamented with tufts of white fur. When a bitch has cubs, and becomes aware that her nest is discovered, she takes them up one by one in her mouth, as a cat does her kittens, and removes them to a more secure place. Foxes bark here about February; the bitch I think first, and is answered by the dog. Some bark so precisely like a dog, that an ordinary person would suppose it was a terrier giving mouth at game. A person who has been much about woods, tells me, that once perceiving a fox in a field, he stole very cautiously up to him, and found that the animal was playing with a live field-mouse, just as a kitten does, and was almost as playful and nimble in his movements. One of the keepers at Donnington Park, hearing a very unusual noise in the woods, went to ascertain the cause, when, to his astonishment, he found it proceeding from two foxes, which were quarrelling over a pheasant. One of the animals had evidently captured the prize, and his gluttonous rival was endeavouring to rob him of it.

Squirrel (*Sciurus vulgaris*). The squirrel is one of our hardiest animals; for not only is he abroad on the sunny days of spring and summer, but also during the chilly ones of autumn and the rigorous ones of winter. I have seen him on bushes and trees even when their branches have been loaded with snow, and when at every footstep he has shaken a shower of snow under his feet. How come some naturalists to state that this animal is dormant in winter? I do not find him so here, for I observe him occasionally during every season. In 1835 I recorded his appearance particularly, and find that he was abroad in the plantations of Calke and Donnington on November 12th, December 9th and February 18th. It is truly delightful to see what cleverness this animal displays in every movement. At one time he glides with a gentle, easy motion, amongst the most delicate twigs; at another he throws himself from the extreme end of a bough, and alights on a tree perhaps a yard distant; and although at every leap he might be supposed to miss his object, he invariably alights in safety. He can run with the same ease in an horizontal, lateral or perpendicular direction, up or down a tree, amongst its foliage or along its bark, and with considerable speed along the ground. In the autumn he is frequently seen on the ground, busily banqueting upon the fallen fruits, such as acorns and beech mast; but if during his feast he hears the slightest noise,—a human footstep, or even a rustling leaf,—he darts off instantly, in a series of jumps and jerks, to the nearest tree, and, running cleverly up the bole, is speedily hid among its branches. The squirrel is plentiful in our woods, but rarely seen in the open country, except during autumn, when he ventures to our gardens to feed upon the ripe nuts.

Dormouse (*Myoxus avellanarius*). Inhabits our larger woods.

Harvest Mouse (*Mus messorius*). I have never seen this animal here myself; but the descriptions given of it by reapers and harvest people are so precisely correct, that I cannot doubt its existence in this neighbourhood. An individual which I once saw was so small that two of them would not have been so long as a moderately-sized ear of wheat.

Long-tailed Field Mouse (*Mus sylvaticus*). This animal is so very shy in his habits that during the winter months he is hardly ever seen abroad, and yet I imagine that our fields are pretty well peopled with them. When breaking up clover roots, in the autumn, many of these pretty animals are ploughed out of the ground; and I have seen the ploughboy returning home on an afternoon with his hat stuck all round with mice, which he had killed with his whip when driving the team, and inserted

there by way of ornament. About September, too, numbers are found in stubble-fields (especially if of wheat and oats), which I think repair there to feed on the refuse ears of corn that are left by the gleaners. Each individual appears to burrow himself a hole in the light, soft earth, two or three feet long, for protection and concealment, and issues forth from it to feed as opportunity serves. When clearing such stubbles, I have known the ploughman to disturb a dozen in scuffling half an acre of ground. During frosts they repair to the warm borders of horticultural grounds, and do serious damage to winter-sown peas, by undermining the rows and nibbling the roots,—thus destroying the crop. They are taken in traps, like the common mouse, if baited with a little cheese. Their chief winter support, however, is the long red fruit of the field rose (*Rosa arvensis*), and they feed chiefly in the night. They mount the twigs of the rose-bushes, and bring away the fruit to some old bird's-nest placed midway in a hedge, which they use as a feeding-station, or, if that be wanting, to the forked part of a branch, and devour it. They reject the husk, and use the flesh and seeds. The latter, which are about twice the size of a common mustard seed, contain a soft white kernel, very acceptable to them, and I have often admired the skill and adroitness they show in extracting it. They have an uniform manner of proceeding, which is by nibbling off the broad end of the shell, and then they clean out the inside very neatly and skilfully, as any one may satisfy himself who will take the trouble to examine the refuse bits which are left on their feeding-stations. As winter approaches, these mice are very partial to withdrawing themselves into a rough bank, overgrown with hawthorn and wild rose-bushes. Here they lie concealed very snugly in holes in the rough bank, lined with soft dry grass and rushes, and subsist as before described, and also on the kernels of haws, to which they gain access as to those of the rose. When labourers have been cutting up an old hedge, I think I have seen more than a bushel of the refuse husks and stones of this fruit, which have been left by these minute animals. In April they may sometimes be observed climbing hawthorn-bushes, in hedgerows, in order to rasp off the young buds from the twigs, which are then expanding: to these they seem very partial, and the animal is a pretty object as he eats them on some thick bough or between the fork of a branch. These mice breed with us in great numbers, making their nests chiefly in fields of long mowing grass, which are consequently exposed when the grass is cut. I have met with them from May until November, and the litters vary from five to ten individuals. Sometimes they nest in turnip-fields and are drawn out of the ground with the horse-hoe, and in September they are dug up from potato-fields: the latter are favourite nesting-places,—on account, no doubt, of having a good supply of food for the young ones near at hand; and this is one of the numberless instances of the providence and forethought with which animals are gifted.

A labourer was employed, one autumn, in getting up some mangold-wurtzel (to pit for cows in the spring, as is here the custom). He had pulled one up, and was cutting off the roots, when he perceived a hole, small and round, very neatly drilled into the bulb, and whilst looking at it out jumped a mouse, and almost immediately afterwards another. This excited his curiosity, and he cut off the top of the mangold, and was not a little astonished to find in the interior a nest full of young ones. The heart of the bulb was completely nibbled away, in the most regular manner, and the hollow scooped out was rather larger than would have admitted an orange. The nest was made of a few dried grasses, which gradually grew finer towards the centre, where the young were secreted. The little animals had either eaten

or carried away the pieces which came out of the plant, as none lay scattered about, and the exterior of it bore no mark of having been used for so singular a purpose.

Common Mouse (*Mus musculus*). When mice have retained possession of a rick for any length of time they increase very rapidly, and destroy an almost incredible quantity of grain. They not only breed during the summer months, but at intervals all through the winter; and I have seen oat-ricks housed in January and February which contained young ones, apparently of various ages. Cats when catching mice almost invariably seize them by the back, perhaps to prevent themselves being bitten. Mice will run for a considerable distance up a perpendicular wall. They seem more partial to the oat than any other grain. When getting corn into a barn, I have seen as many killed as would have filled a bushel: the rick being a protection against the larger predatory animals, and the mice rarely venturing from it, they have plenty of food, are shielded from harm, and multiply rapidly. As the stoat preys principally on this mouse, and can insert his slender body into crevices which would not admit that of a cat, I think his services are very valuable about rick-yards and buildings, and that he ought on no account to be destroyed: I always witness with disgust that brutal feeling so commonly exhibited by many country persons, in baiting to death this and similar animals, and displaying such stupidity, ignorance and prejudice, as will not allow them to inquire whether the object of their chase is an animal of harm or utility. Many common mice are found in corn-fields in summer, where they breed, burrowing a small hole in the light pulverized soil, and again returning to habitations as winter approaches. Some never leave the latter at all. I have seen them in the fields so late as September 13th, October 4th and 12th.

Brown Rat (*Mus rattus*). Towards spring the common rat leaves our stacks and buildings, and lives the summer through in the open fields, and many are trapped by gamekeepers. They breed amongst the corn, burrowing—like the rabbit—a hole in the ground, into which they draw a few bents and deposit their young. They are very voracious at this period, and in lieu of corn will attack young leverets and game. In the autumn they assemble together, and return to their former haunts. I was once an eye-witness to an act of affection on the part of a female rat which I think worth recording, more especially as this animal is considered to have little in its character to recommend it. Some persons, who were cutting a field of standing barley, mowed over a rat's nest full of young ones, when the dam, who was suckling them, instead of retreating remained in the nest, and, in her anxiety for their preservation, actually laid so fast hold of the scythe that she was obliged to be shaken off: this nest was made in a slight depression of the ground, and not on the ground as usually is the case. I have known an individual, which had been caught in a trap by his leg, bite it off and effect his escape; and another to pick out the eyes, and eat the softer parts of a dead companion. Some few of these rats will betake themselves entirely to the woods, poaching for their livelihood, and from their wilder mode of life soon alter in appearance: their body grows longer and more weasel-like, their hair more shaggy, the hairs on their mouth longer, and altogether they assume a more ferocious and determined character. The feet of some I have noticed were red. An ordinary observer would suppose they were of a different species.

Water Rat (*Arvicola amphibia*). There is a feature in the history of this animal which I do not remember to have seen noticed by any natural historian, viz., his propensity to climb trees. When whitethorn bushes overhang the streams which they

inhabit, these animals, during severe weather and scarcity of food, ascend them, and crawling along the branches soon despoil them of their fruit; and when their bulk is taken into consideration, it is astonishing with what agility and speed they accomplish this operation. I have seen them poised amongst twigs so slender, that they were seemingly unable to support a weight half so heavy as an arvicole's, and at an altitude of four or five yards from the water. When alarmed suddenly, they will drop from a branch several feet into the stream, and, disappearing, dive with rapidity to the nearest bank and bury themselves in the earth. Judging from the numerous fragments of the seeds, which lie scattered near their haunts, it appears that they subsist through the winter months almost entirely upon haws or fruit of the wild rose, and probably such vegetable matter as the moistness of winter leaves unwithered and undecayed. In frosts and snows they peel the bark off hawthorn-bushes, and I have seen whole bushes laid bare by them, and the operation was performed in as neat a manner as deer gnaw the bark off branches that are given to them in snows. This was the case along the brook for miles during the severe frost which occurred in December, 1844, and February, 1845. Water-rats peel the oziars in the beds [in] Donnington Park, and do serious damage, and thus inflict great injury on the basket-makers. On December 3rd, forty individuals were killed at one time. This animal is a great favourite of mine, for he is quiet and unobtrusive, and devoid of those grosser faults which have rendered the Hanoverian rat so obnoxious. He appears partial to pools and stagnant waters, small running streams, &c., but exists in scanty numbers along the Trent. He retreats during the day to his subterranean dormitory, and issues from it during the early morning or towards the close of the day. He loves those spots where the green rushes grow or the broad flags shade the water's surface: beneath these he steals cautiously along, now stopping to nibble a blade of grass, and now to examine the leaf of some water-plant which has attracted his notice; but if during his ramble he hears the slightest noise, he instantly drops from the bank into the stream, and, diving for a few yards, hurries on to a place of concealment. Some grassy turf, slightly elevated above the water, is a most favourite spot with him, for upon the slightest alarm he has a better opportunity of indulging in his amphibious propensities. His food consists chiefly of vegetable matter, such as the leaves of aquatic plants and tender flags, which I have observed him devour like a rabbit, separating the blade near the root and nibbling it gradually to the other extremity. In winter he is accused of resorting to turnip-fields which border upon his haunts, gnawing holes in the bulbs and thereby letting in rains, which decay and damage the crop. He will also feed on *fish* which has been left by floods near his haunts, and I am pretty sure that in cases of emergency he can take them *alive*, as I have often seen parts of fresh fish lying near his haunts when no floods had occurred; and these he had evidently been eating, as might be told from the droppings which he had left behind him. I have seen this animal on one occasion evince considerable courage. Walking by the Blackwell Brook one day, I saw a water-rat run past on the opposite bank in great haste: almost immediately afterwards came a stoat hot in pursuit, but evidently running by scent: backwards and forwards ran both animals, within a certain space, for upwards of ten minutes, when both made a dead pause within a yard of each other, and I expected to have seen the rat fall a prey every moment; but such was not the case, for she ran forwards upon the stoat with great fury, and became in her turn the pursuer, and was not content until she had driven her voracious enemy from the

neighbourhood. I have no doubt that the rat was a doe which had young, and was prompted by maternal affection to take the measures she did: what surprised me was, that she never retreated to a hole or dived under water, which would have been an almost certain mode of escaping danger.

Short-tailed Field Mouse (*Arvicola agrestis*). This mouse is certainly much rarer than *Mus sylvaticus*, but still not rare. They breed principally in mowing fields, and prefer the meadow to the higher grounds. The nest is frequently mown over about the middle of June, and sometimes contains as many as ten young ones: it is situated in the thickest tufts of herbage, and there is generally a hole near, into which the old parents retreat in cases of emergency: it is round in shape, and composed entirely of dried blades of grass, lined with finer grass nibbled into small pieces. This animal does not lie dormant through the winter, but is very fond of laying himself up snugly in a tuft of coarse herbage, from which he makes several avenues or runs, one of which terminates in a hole under ground: into this he probably retreats as the weather increases in severity or when an enemy is at hand. These mice appear to be most numerous on the borders of marshy parts: they are very delicate and tender animals, for I notice that they die upon receiving a very slight blow. The latest period at which I have found a nest was August 12th, 1845: it contained seven young just born. Having carefully examined this nest, I could not discover the least trace of an entrance-hole, nor even when I pulled it to pieces could I ascertain how the parents entered their abode; and I believe that they must have made a fresh hole each time they entered the interior, and closed it up again when they departed.

Hare (*Lepus timidus*). I have little to add respecting the history of this dire enemy to well-cultivated arable lands; for owing to the enlightened policy pursued by the noble owner of this domain, the hare is here little more than a natural curiosity. Hares appear sometimes to frequent the burrows of rabbits, for I have known several during a coursing-day make for a particular hole, and thus elude the pursuit of the greyhounds, and take as direct a line as though they were accustomed to occupy it. Hares are seen to cross the Trent occasionally when no hounds have been in pursuit to oblige them to do so.

Rabbit (*Lepus cuniculus*). On September 20th, 1845, I put up from a field of turnips a rabbit entirely black. This was distant two miles from any village, and therefore not likely to have escaped from confinement. The rabbit generally produces its young about seven times in the year, but in open seasons oftener. I have seen young rabbits during the months of January, February, March, April, May, June, September, October and November, but the spring is their busiest breeding-season. This animal displays a considerable amount of industry and ingenuity. It loves high, dry and sandy banks, or those where the soil is friable, and in these excavates a passage (I have found one seven yards long), at the end of which it makes the nest. In nine or ten days after the young are dropped the entrance to the hole is completely blocked up with a quantity of loose soil, so that it looks like common ground; and each time the dam goes to suckle them she is obliged to scratch it away, and again block it up when she leaves them. Whether this precaution is taken to protect them against predatory animals, or to render the apartment warmer, it is difficult to say, but probably the latter; for as they increase in size she gradually leaves the entrance a little wider, until no soil remains there at all. The labour in mining their excavations must be very considerable, as in many cases a new one is made upon the production of a fresh litter. I cannot ascertain precisely what length of these tunnels

a pair will mine in a year, but probably from twenty-five to thirty yards,—a great amount of labour, considering it is principally accomplished with their feet. When the pair have fixed upon a place for breeding, the female takes possession of the hole, whilst the male finds quarters elsewhere, generally in a neighbouring hedgerow not far distant. When the breeding-season commences, the greater part of the males are driven from or leave the warren, and occupy its outskirts. If a hole is burrowed in a field it generally inclines downwards; but on digging out their holes by the side of a brook, I noticed that they direct them upwards (a precaution which I have often admired), in order to prevent the waters washing into the cavity: this fact I have frequently noticed.

Red Deer (*Cervus elaphus*). In Donnington Park is a small herd of these magnificent and noble animals: they appear bounding away amongst oaks of a thousand years' growth, or standing majestically beneath some fine spreading elm. In autumn they make a deep grunting or bellowing noise, which causes the woods to echo; and although it is anything but agreeable in tone, it is nevertheless always heard with pleasure, for it seems a suitable sound to be produced by an animal haunting forests and chases, glens and old woods. Harsh sounds are sometimes agreeable on account of the associations to which they give rise; and for this reason the noise of this deer is always acceptable, for it invariably leads the mind to beautiful haunts,—the smooth greensward over which the deer bounds, the still pool where he drinks, and the venerable oak by which he is overshadowed. When pressed by hounds, the leaps or bounds of this animal are beautiful: I knew one which—after four hours hard running—crossed a brook by a bound of twenty-four feet.

In Donnington Park, too, there is a fine herd of fallow deer, numbering about five hundred head. In the autumn they become bold and pugnacious, and fight like rams, attacking each other with great spirit; and very amusing it is to see their curious manœuvres, and pleasing to hear the rattle of their antlers. These contests last oftentimes for hours, until the defeated deer shrinks back to his companions or bounds away amongst the oaks: occasionally he is so fatigued that he seems scarcely able to leave the spot. At this period it is dangerous for persons to go through the park where they are depastured. When does drop their fawns they sometimes cover them up with dead leaves and pieces of fern, either for concealment or to make them warm and comfortable. Fallow deer have a pretty habit of raising themselves on their hind legs, in order to crop the young shoots and leaves of trees that are just above their reach. In order that their antlers may not become entangled amongst the branches, they show a piece of adroitness worthy of note; they let them drop down backwards on their shoulders, as a hare does her ears when squatted in her form. I have seen this deer, in cases of emergency, resort to a cunning stratagem to avoid pursuit, *i. e.* drop down suddenly amongst the long fern, her hind legs bent beneath her body and her head and neck laid flat on her fore feet: in this position the body lies in a wonderfully small compass. Owing to the large herds of deer kept in Donnington Park, the turf in the unwooded parts is beautifully soft and green, for of all our large wild animals fallow deer are the closest grazers. In winter they nibble all the lower branches of trees, and during frosts and snows are fed by the keepers with the branches of trees and the thinnings of young plantations; and so adroitly do these animals peel off the bark, to which they seem very partial, that the boughs appear to have been stripped by woodmen or persons skilled in the operation. In a ramble over Kedleston Park, I once beheld a novel and interesting spectacle: a herd of fallow deer, feeding in the

distance, suddenly took fright and came scampering across the greensward, when, plunging into the lake opposite the mansion, they crossed to the opposite side: their bodies were completely immersed, and it was a beautiful sight to see nearly a hundred antler-garnished heads just above the level of the water.

JOHN JOSEPH BRIGGS.

King's Newton, Melbourne, Derbyshire,

October, 1848.

(To be continued).

Bats flying by Day (Zool. 2252).—During the months of April, May and June, this year, I constantly saw the common *Vespertilio murinus* flying about a ruin of Battel Abbey, between 8 and 10 o'clock, A. M. I caught two or three with a net as they swept the air, and these proved to be young ones. I had a tame jackdaw at the time, and on giving him one he greedily ate it. The place where I saw the bats is tenanted likewise by jackdaws; and I venture to suggest whether the said jackdaws may not have taken a fancy for their winged companions, and therefore they (the bats) were hunted by the jackdaws for food? Again, if all the bats were young ones, may it not be a natural habit to them to fly by day?—*J. B. Ellman; Battel, October 3, 1848.*

Cats and Nemophila insignis.—I can fully confirm Mr. Lawson's account of the destructive attention paid by cats to *Nemophila insignis* (Zool. 2252), having more than once had several clumps of that pretty little plant completely annihilated by "the feline gentry," and some of them soon after the appearance of the seedlings above ground; but whether from love or hatred, I do not pretend to say.—*George Luxford; East Temple Chambers, October 4, 1848.*

Occurrence of the Oared Shrew (Sorex remifer) in Lancashire.—I captured, about three months since, in a hay-field, some distance from any water, a very fine specimen of the oared shrew. The head and body, when rigid, soon after death, measured $3\frac{1}{2}$ inches; and the day after, when flaccid (as the bodies of shrews and moles always become), fully 4 inches in length. This is considerably more than the length given by Mr. Bell, *i. e.* 3 inches 2 lines. I am sorry that I did not take the other dimensions carefully. In the same field my little terrier caught about a dozen of the common species (*Sorex araneus*), which, by the way, vary greatly in colour, from light grayish brown to nearly black: he also caught a water-shrew (*Sorex fodiens*) with blackish ciliæ, instead of white, as in all other specimens that I have seen. I have thus specimens of all the three British *Sorices* taken in one field. The water-shrew is common in ditches about here, but is not easily caught.—*George Wolley; Huyton, near Prescott, Lancashire, September 29, 1848.*

Provincial Names of Birds in Gloucestershire and Worcestershire.—It being the opinion of some of your correspondents that a record of the provincial names of birds will not be without its use, I now send a list of the names of the common birds of this neighbourhood. I have collected them from bird-nesting boys, as they know much more of birds than their fathers do, who seldom trouble themselves about such matters. The names to which the letter G. is prefixed belong to the Forest of Dean, in Gloucestershire, where I resided when I was a boy. The hen harrier is called a 'faller.' All the smaller birds of prey go under the name of 'hawks.' The red-backed shrike is in G. a 'French magpie' or a 'horse match,' here it is a 'butcher bird.' The white owl is the 'screech owl.' The tawny owl is a 'dun owl.' The missel thrush is a 'bunting thrush.' The fieldfare is called a 'blue-tail.' The redwing is in G. a 'whin thrush:' in the same locality the hedge sparrow is called a 'hayzuck' (no doubt a corruption of 'Isaac'): there also the redstart is a 'red firebrand-tail,' here it is simply the 'red-tail.' The stonechat is here called the 'black-a-top,' in G. it is the 'gorsechat.' The wheatear and whinchat are called here the 'horse match' indiscriminately. The common and lesser whitethroat are the 'nettle creeper' or 'Isaac.' The willow warbler is a 'grass mumruffin.' All the kinds of wagtail are 'water wagtails.' The tree pipit is the 'ground lark.' The meadow pipit is a 'twit lark.' The common bunting is called the 'bunting lark.' The chaffinch is a 'pea-' or 'piefinch.' The greenfinch is a 'green linnet.' The common linnet is the 'brown linnet.' The bullfinch is in G. a 'hoop.' The carrion crow, rook and jackdaw are indiscriminately 'crows,' except at breeding-time, when the rook goes under its proper name. The magpie is a 'maggot.' The green woodpecker is called the 'ekel' (meaning no doubt 'hukwall'). The wryneck is the 'cuckoo's mate.' The common creeper is a 'tomtit.' The nuthatch is a 'creep tree.' The common swift is in G. a 'screecher.' All doves are here called 'wood pigeons.' The long-tailed tit is a 'hedge mumruffin.' The common sandpiper is a 'summer snipe.'—*John N. Beadles; Broadway, Worcestershire, October 7, 1848.*

Provincial Names of Birds in Yorkshire.—The following are the names of some of the common birds of Yorkshire, as in general use among bird-nesters. The crow or rook is always called a 'crow.' The magpie, a 'mag' or 'maggy.' The land-rail, a 'corn crane' or 'crake,' and in the more western part a 'gurs' or 'gors duck.' All the warblers go by the name 'peggy' or 'peggy whitethroat.' The yellow hammer, a 'youlring' or 'gouldring.' The chaffinch, a 'spink.' The little redpole, a 'chevy lin.' The hedge sparrow, a 'duncock.' The missel thrush, a 'storm cock' or 'hollin cock.' The large titmouse, a 'black-cap.' The blue titmouse, a 'blue-cap' or 'Billy blue-cap.' The starling, a 'shepstep' or 'shepster.' The redstart, a 'redster.' The long-tailed tit, a 'bottle tit' or 'feather-poke.' The whitethroat, a 'winnel' or 'windle straw.' The whinchat, an 'entick.' The wheatear, a 'stonechat.' The black-headed bunting, a 'willow sparrow,' sometimes a 'toad snatcher.' The common tern, a 'sea swallow.' The nightjar, a 'goat-sucker.' The owl, a 'hullat.' The fly-catcher, a 'flea-catcher.' The wagtail, a 'wattertie.' The little grebe a 'dipper' or 'dobber' or 'Tom pudding.' The swift, a 'devilling' or 'Dicky devilling.' The common wren, a 'jenny wren' or 'jenner-hen.' The green woodpecker, a 'nickle.' The heron, a 'herring shrew' or 'herring shaw.' The sedge warbler, a 'leg bird.' The sandpiper, a 'sand snipe.' The siskin, a 'haber-de-vine' or 'haver-de-vine.'—*J. Johnson; 27, Kensington Square, October 9, 1848.*

Nomenclature of Birds.—Will you allow me a few lines to set myself right, if I can, with your able correspondent Mr. Fisher (Zool. 2134)? It appears to me that objections may be made to a specific name in Natural History, without any necessity being implied of a new and more appropriate name having to be substituted in its stead by the individual by whom the objections are brought forward. And, living in a remote and obscure corner of the country, where the study of Natural History is wholly unknown, and where there is access neither to museums nor to expensive publications, I should certainly consider it as great presumption on my part were I to propose the adoption of a scientific name for any object in ornithology. Nor had I, moreover, the slightest intention of infringing that excellent rule, *priority in nomenclature*, to which you yourself express your determination to adhere, and which, indeed, would appear to be absolutely necessary, if uncertainty and confusion are sought to be avoided in Natural Science,—inasmuch as this science is at the present moment advancing in all its branches with unusual rapidity, and is being almost daily enriched by numerous and important discoveries. My complaint was, that a better selection was not made when a name was being given for the first time to the bird in question; and although it would now be improper to change this name, such complaints may, nevertheless, produce more satisfactory results in nomenclature yet to come. My objections are not yet weakened in any measure to names ending in *oides*; and I cannot help still thinking that a specific name is what it really ought to be, only when it alludes to something which is peculiar to the object named, and which is not to be found precisely the same—as to form, or colour, or habit, as the case may be—in any one whatever of the other objects, however many, throughout the whole of that particular genus, which, along with itself, they all make up. I can at the same time easily believe, with Mr. Fisher, that to construct a nomenclature on such a principle would be exceedingly difficult, or rather, perhaps, impracticable; but I am humbly of opinion, nevertheless, that the more this principle is carried into effect, the more clear and satisfactory will the science of Natural History become. I did not take upon me to say that the white bar on the wing of the *Fuligula ferinoides* should have been the foundation of its scientific specific name. I merely asked, if that, or some other peculiar mark, might not have been selected at the time, instead of the word which was actually adopted. I had no opportunity of seeing a specimen of the new pochard, nor of examining the different species of which the genus *Fuligula* is composed; and I now find that such a name would not have answered, seeing that other species in the genus *Fuligula* are, in this respect, marked in a greater degree even than the *Fuligula ferinoides*. The observations made by Mr. Fisher on the name *Regulus reguloides* would seem to have somewhat the appearance of implying his belief that no such name has ever been given to any object in Natural History. It is but proper, therefore, to refer him on this point to Sir William Jardine's edition of 'Wilson's American Ornithology,' where he will find (vol. i. p. 127) that this identical name was conferred by the editor on the American golden-crested wren, no fewer than sixteen years ago. Sir William Jardine is acknowledged, on all hands, to be one of the most eminent of our living ornithologists; and, if the principle involved in such a name as *Regulus reguloides* is bad, it cannot but be evident that its adoption by so influential an authority must have consequences injurious to the purity and the precision of science.—*James Smith; Manse of Monquhitter by Turriff, Aberdeenshire, October 2, 1848.*

Ornithological Observations in Norfolk for the months of June, July and August.—About the 7th of June an adult female white stork was shot near Yarmouth; and on

the 30th a pair of hobbies were observed at Easton, one of which—a male, apparently of the second year—was shot. On the 3rd of July, a pair of partridges with their brood, having been attacked by a terrier dog, the latter was completely driven off by the male bird. On the 7th, three avocets (all females) were shot at Salthouse, and a spotted redshank (female) was killed at the same place on the 2nd of August. On the 8th of the latter month an adult female hobby was shot at Whittingham; on the 13th, a flock, containing seven of the little stint, was observed on Yarmouth beach; and on the 26th, a female quail with a young one (quite small) were captured at Drayton.—*J. H. Gurney, W. R. Fisher; September, 1848.*

Remarks on Birds visiting the River Dovern, near Banff. By the Rev. JAMES SMITH.

THE river Dovern falls into the sea at Banff, the chief town of the shire of that name. Having resided for many years in that town, I send you a few remarks on some of the birds which are to be seen there, and which do not usually come under the notice of your southern correspondents.

The bay is frequented by flocks of the long-tailed duck (*Harelda glacialis*). The period at which they arrive depends, in no inconsiderable measure, upon the severity of the weather, but may be stated in general terms as from Martinmas to Christmas. Their operations, while here, are confined exclusively to the ocean. I have never observed one of them enter the river, even for the most limited distance. They associate in flocks, often consisting of twenty or thirty. Their food is obtained by diving, and it is interesting to watch them while they are thus engaged: the whole number vanish from the sight almost simultaneously: after a short space they again appear, the entire flock having emerged in a few seconds after the first individual has presented himself to the view: they come up, one here and another there, like so many bubbles, till they are all on the surface: having drawn their breath for a very limited period, one of them is seen again to dive, and, in so doing, he appears to the spectator as if he were rolling himself up into a ball; his example is instantly followed by the rest, and, in a moment, the ocean flows once more unruffled, not one of the flock being any longer visible. In this way they continue, with great animation and perseverance, until their hunger is satisfied, when they remain at rest, floating upon the sea, and seemingly allowing themselves to be carried along by its current. I have never seen them in any instance on the shore, or even on the rocks, which rise here and there above the water. They repose all night, it is presumed, upon the surface of the deep, and are, therefore, *sea-fowl* in the strictest sense of the term. As the season approaches for their departure to more northerly regions, their plumage assumes more vivid, glossy and decided markings; although, contrary to what is the case with birds in general when they are in a state of nature, these markings, especially about the head, are by no means the same in all the individuals, either in the form or the colour,—some having more white than others, some more black, and the chocolate patches being of different sizes and of different shades of intensity. At this season they are noisy and restless in their movements. There appear to be contentions among the males; and they flutter along the surface, hurrying through each other's ranks, and splashing the water in all directions. Their flight, while here, is never long sustained,

nor at a great height above the surface of the ocean. It is marked by a greater flapping of the wings than what is observable in the flight of the duck tribe in general, and is not unlike the movements of the common pigeon. Their wings, also, appear broader and extended more horizontally than those of most other species among the Anatidæ. Their cries are of a singular character; and from these cries their own trivial name has been formed, according to the manner in which they have struck the ear of the different people among whom the birds have, at any time, their abode. Dr. Richardson, for example ('Fauna Boreali-Americana,' vol. ii. p. 460), enumerates the names by which they are known, in this way, among the inhabitants of the United States, the Canadians, and the Cree Indians; and they are all of them, more or less, an exact imitation of the sounds themselves as they are heard in Nature. The name, however, given to them in the locality to which I am referring, would appear to be the most accurate imitation of any: it is expressed by 'coal an' cannel licht,' being the Scotch for 'coal and candle light.' These words, when pronounced rapidly, and when the last word is dwelt upon, convey an exact representation of the cries of which we are speaking. When the sea is calm, these cries may be heard of an evening all over the bay. Towards Whitsunday, even in the severest seasons, the long-tailed ducks have all taken their departure for the north, and are no longer to be seen.

When the season is severe the scaup duck (*Fuligula marila*) makes its appearance on the river, but, so far as I have remarked, does not penetrate inland beyond the influence of the tide. On the occurrence of a continued storm, when the snow lies deep and the frost is intense, this duck has been observed in a flock of from ten to a dozen. On their first arrival, I have approached the brink of the river, and have stood looking at them at the distance only of a few feet. They seemingly took no notice of the circumstance, continued their movements, and appeared wholly unconscious of danger. After the lapse of a few days, however, having experienced probably how formidable an enemy is man, they became as wary and as difficult of approach as at first they were heedless and undismayed by the vicinity of a human being: this circumstance would tend to show that they had come direct from a region where man is not to be seen. They are known among the inhabitants, or rather the *sportsmen*, of the locality in question, by the absurd name of the Norwegian teal.

In stormy winter the river is adorned by the presence of the goosander (*Mergus merganser*). This handsome and conspicuous bird has no provincial name, so far as I am aware, by which he is known in this locality. His visits are rare, and there are many seasons when he does not make his appearance at all. On some occasions, however, I have seen as many as from a dozen to twenty. The female, as is well known, is so different in her appearance from the male, that she was long regarded by naturalists as a distinct and separate species, under the name of the 'dun diver.' There is still the recollection present to my mind of having remarked, that, while the male almost uniformly takes wing on your approach to the river, the female rarely or never does so, but, with a hoarse and as it were suppressed kind of croaking, makes off for the opposite side, sunk deeply in the water, and hurrying rapidly down the stream: should she be surprised unexpectedly, or pressed more hardly and perseveringly than usual, she finally dives, makes her way rapidly under the water, and emerges silently at a very considerable distance from the spot where she went down: the male, on the contrary, although he gets upon wing with apparent difficulty, moving at first like a stone skimming the surface of the water, ascends, nevertheless, to a great elevation in the air, describing a circle of extended diameter, and only alighting again after more

evolutions than one, and when the danger is apparently over. When on the wing, his back appears as if it were broken, the centre of the line rising into an angular point, and falling gradually on both sides. He utters no cry, and the motion of his wings is like that of the common mallard. When newly shot, his breast is of that beautifully delicate and reddish tinge which is sometimes to be seen in the atmosphere, at the going down of the sun, in a calm evening of winter: it speedily fades, however, and turns into a dull shade of the colour of nankeen. The goosander male and female are frequently found on the river, far beyond the influence of the tide, and on some occasions have been met with in the inland part of the country.

The golden eye (*Clangula vulgaris*) may be regarded, in the locality in question, as a migratory species which fails not to make its appearance, whatever the nature of the winter may be, although its numbers are always greatest when the season is the most severe. The flight of this bird is so vigorous, that, as it moves along, it produces a peculiar and very audible whistling in the air: this is familiar to all who have seen it fly. So far, however, as I have been able to perceive, the whistling of which we are speaking is peculiar to the male, and is not to be heard in the flight either of the female or of the young male, both which, as in the case of the goosander, are so very different in appearance from the adult male, that they have been described by naturalists as a distinct and well-marked species. And even yet, while it is generally admitted that what was named by Linnæus the *Anas glaucion*, and had for its trivial designation the 'morillon,' should now be regarded as either the female or the immature male of the golden eye, it is, nevertheless, asserted by some, that there is in existence in this country a smaller duck, which, although of similar plumage with the female and young male of the golden eye, is notwithstanding a distinct species, being of different form and habits and of inferior flavour as an article of food, and that it ought to be considered as the true and proper morillon. The observations made on this particular point by Mr. Colquhoun ('The Moor and the Loch,' p. 52 *et seq.*) are interesting, and certainly appear conclusive; and they ought to induce attention to the supposed identity between the small morillon and the golden eye, on the part of those who may have the necessary opportunities for pursuing the investigation. The golden eye has a cry of a hoarse and somewhat hissing character: it is seldom uttered, but may occasionally be heard by an attentive listener: it is compared, and not inaptly, by the writer now mentioned, to a single note on the hurdy-gurdy.

In the bay bag-nets are set for the purpose of taking salmon. In one of these a northern diver (*Colymbus glacialis*) had got entangled, and was found drowned by the fishermen. I had an opportunity of examining him as soon as he was brought on shore. He weighed no fewer than twelve pounds, and was of the most beautiful plumage and in the finest condition. The ribbon or band round his neck was perfect the whole way, was most distinctly marked, and was not obscure nor interrupted, as in most of the specimens which are to be seen of this interesting bird. I once saw another and a much smaller bird of this species, which had been caught in a similar manner, but which had been got hold of alive: it was kept for some time in a place of confinement, where it ceased not to utter a loud and prolonged howl of the most dolorous character: at length it was resolved to set it at liberty. With the view, however, of observing its peculiar motions, it was placed upon the shore at a very considerable distance from the water: it instantly evinced the greatest eagerness to get to its natural and beloved element: it was capable, however, neither of walking—in the usual acceptation of the term—nor of rising upon wing from the ground: accordingly,

with its tarsus and foot pushing upon the surface, and all the while flapping violently and rapidly its diminutive wings, it dragged itself, as it were, over all the pebbles and intervening obstacles; and, on reaching the sea, dived with the rapidity of an arrow amid the waves, and quickly reappeared far off from the shore. The red-throated diver (*Colymbus septentrionalis*), but without this generally characteristic mark, either owing to age or to the particular season, is also frequently to be seen in the bay, and is known by the name of the 'loom' or 'loon.' He fishes alone, and when he is thus employed, and when the sea is running high, he invariably awaits the approach of the gigantic wave; and as it appears about to break upon him, he quietly makes his dive beneath it: having done this with the most graceful ease, he comes up again in a spot where the water is at the moment calm.

During a severe and continued storm, I once saw on the river a specimen of the tufted duck (*Fuligula cristata*). His crest or tuft appeared conspicuous, hanging down his neck like the plumes of some of the herons: he kept to the middle of the stream, swam rapidly, and would not be made to take to flight. Unless on this one occasion, I never saw this species of duck upon the river. Once also, and only once, a single specimen was observed of the pintail duck (*Anas acuta*): it was in a flock of mallards, and continued to associate with them for several days.

It is proper to remark, that the portion of the Dovern to which the foregoing observations principally apply, is that which flows within the park of Duff House, the seat of the Earl of Fife. As his lordship does not permit the birds within his grounds to be fired at or molested, there is in consequence a more favourable opportunity than usual for becoming acquainted with the habits and evolutions by which they are respectively characterized.

JAMES SMITH.

Manse of Monquhitter by Turriff, Aberdeenshire,
October 2, 1848.

Local Lists of Birds.—No contributions to the 'Zoologist' have afforded me greater pleasure than the local lists of birds, and yet some of these have contained a great amount of repetition. With great deference to the judgment of my ornithological readers, I beg to call their attention to the plan I have adopted in the Appendix to the letters of Rusticus for obviating this difficulty; and although I must refer them to the book itself to see whether the plan I propose is capable of reduction to practice, yet I will here just give an outline of the plan itself. I find that in the neighbourhood of Godalming 201 species of birds have been killed or seen: 89 of these build their nests and bring up their young every year,—and this as a matter of certainty, not of accident,—and I therefore consider the whole of these to be *natives*; but still they may be divided into two minor groups, *first*, those which after the breeding-season still remain, thus being *residents*,—these are 58 in number; and *secondly*, those which leave the district in the autumn, being *migrants*,—these are 31 in number. All other birds are *visitors*, and these amount to 112; of which number 29 come earlier or later in the autumn, stay during the winter, and leave in the spring; of course they do not breed; these are *winter visitors*: one bird only, the ring ouzel, visits the district regularly in spring and autumn when on his passage; this is a *passing visitor*: and no less

than 82, belonging properly to other districts, visit the neighbourhood now and then, sometimes breeding, but generally merely passing, or, as in the instance of sea-birds, being perhaps driven inland by stress of weather. All birds are thus comprised under five divisions:—

Resident Natives.

Migrant Natives.

Winter Visitors.

Passing Visitors.

Occasional Visitors.

The birds falling under the *native* divisions merely require enumeration; and unless interesting anecdotes or unrecorded peculiarities can be adduced, the bare list of names printed in three columns would amply suffice. The *winter* and *passing visitors* require a few explanatory memoranda, which may be placed below the columns of names. Of the occasional visitors every particular should be given, especially the dates of occurrence. By adopting this plan at a variety of stations, the most valuable statistics of British ornithology would be obtained.—*Edward Newman.*

Colour of the Egg of the Egyptian Vulture (*Vultur percnopterus*).—Your correspondent, the Rev. Mr. Malan (*Zool.* 2138), intimates, in reference to the egg of the Egyptian vulture, that Mr. Yarrell is wrong in calling it *white*, and he moreover says that he can corroborate the description given of it by Mr. Hewitson as being correct. This I cannot understand; for, both in his *Supplement* and in the second edition of his 'Oology,' Mr. Hewitson has figured and described the egg in question as being of a pure bluish white, without any spot or marking whatever,—whereas Mr. Malan affirms, on the contrary, that the egg is either spotted or blotched all over with reddish brown: in what respect, then, does he *corroborate* Mr. Hewitson?—*James Smith; Manse of Monquhitter by Turriff, Aberdeenshire, October 2, 1848.*

Curious Anecdote of the Kestrel (*Falco Tinnunculus*).—In the summer of 1847 two young kestrels were reared from the nest, and proved to be male and female: they were kept in a commodious domicile built for them in an open yard, where they lived a life of luxury and ease. This summer a young one of the same species, not unlike a powder-puff,—for it was still covered with down,—was brought and put into the same apartment; and, strange to say, the female kestrel, sensible (as we must suppose) of the helpless condition of the new-comer, immediately took it under her protection. As it was too infantine to perch she kept in one corner of the cage, and for days seldom quitted its side: she tore in pieces the food given to her, and assiduously fed her young charge, exhibiting as much anxiety and alarm for its safety as its real parent could have done. If any biped or quadruped approached the cage she expanded her wings, erected her feathers, and kept up an incessant clamour, as if to scare the intruder away. But what struck me as very remarkable, she would not allow the male bird—with whom she lived on the happiest terms—to come near the young one, being doubtful, probably, of its tender mercies; be that as it may, she repelled all advances on his part. As the little stranger increased in strength and intelligence her attentions and alarm appeared gradually to subside, but she never abandoned her charge until it could carve for itself and perch by her side, on which occasions she seemed mighty proud of her foster child, and its sleek and glossy appearance afforded ample proof that it had been well cared for. The three are now as happy as confined birds can be, Mrs. Kestrel having laid aside all jealousy of her mate and apprehension from strangers. No apology seems necessary for recording in the pages of the

'Zoologist' that a bird of predatory habits, a stranger also to maternal cares, no sooner sees a helpless young one of its own species than it comprehends its wants, and, what is still better, relieves them. What a lesson might man, with all his boasted reason, learn from the instinct of this persecuted bird!—*W. Turner, A.M.; Uppingham, October 10, 1848.*

Occurrence of Hawks near Bicester.—A fine specimen of the honey buzzard (*Falco apivorus*) was shot near Woodstock a short time since; also a female specimen of the Montagu's harrier (*Circus cineraceus*), and several specimens of the hobby (*Falco sub-buteo*): of the latter I have received four specimens, namely, male and female old birds, and male and female young birds.—*Thomas Prater; Bicester, September 23, 1848.*

Capture of a Honey Buzzard (Pernis apivorus) near Beamish, Durham.—A honey buzzard was shot by the gamekeeper of Sir John Eden, Bart., near Beamish, Durham, on the 7th instant. It is a male, and in the plumage of the first year,—a uniform dark brown. I have not heard of the occurrence of this fine bird in our district since its unwonted abundance in 1841.—*Thomas John Bold; 42, Bigg Market, Newcastle-on-Tyne, October 16, 1848.*

Prolific Pair of Blackbirds.—The following notice, regarding the nidification, &c., of a single pair of blackbirds, during the bygone breeding-season, may interest some of your readers, and show that this species may multiply in a greater ratio than many are aware of.

April 27, 1848. The young leave the first nest, built in a clump of ivy on the top of a wall; four in number, one egg having been abstracted from the nest before incubation.

April 29. Two eggs in the second nest, detected in a bushy yew tree.

May 16. The cock observed feeding the five young, newly hatched, on the second nest.

May 24. Hen blackbird seen making her third nest in an apple tree nailed to a wall.

May 29. Two eggs in the third nest; and the brood leave the second nest and perch on the trees.

June 10. Third nest forsaken. Of the eggs, which were five in number, two remain in the nest, part of the others on the ground below the nest, and part of them found on a walk some twenty yards from it.

June 14. Blackbird's fourth nest begun in a birch hedge.

June 23. Of the five eggs laid in the fourth nest only two remain; another found on the ground below it: it seems to have been pillaged by some bird, in the same way as the third nest.

June 26. Fifth and last nest of blackbird partially formed in a vine trained on the end of a house.

July 18. Blackbirds in the fifth nest half grown: they leave the nest on the 26th.

Thus a single pair of birds had twenty-five eggs, and reared fourteen young in one season. The garden and shrubbery are so small in extent, that had there been more than one pair about them they would have at once been detected; and such were frequently looked for, but always in vain. The dates of the different stages observed also tend to show that one pair may have constructed and managed the whole nests with their contents, eggs being never found in more than one nest at the same time, unless when one had been forsaken. From a careful examination of the ground

around the third nest, it is inferred that it must have been some winged creature that disturbed the female on her eggs, and destroyed some of them. Was this the male?

The song of the blackbird is duly acknowledged to be grateful in a garden, in spring and during the earlier months of summer; but the usefulness of the bird there, in the destruction of grubs, &c., perhaps has not been sufficiently appreciated. Still this agreeable and useful denizen of the parterre plays such havoc in the fruit season, that many are disposed to extirpate rather than protect the species. Of every description of fruit, from the earliest strawberry to the latest apple, they take their share, and of course from the ripest.—*George Gordon; Elgin, October, 1848.*

Early Arrival of Fieldfares (Turdus pilaris) and Snipes (Scolopax gallinago) near Battel.—For the past fortnight fieldfares and snipes have been unusually abundant in this district. In Pevensey Level upwards of fifty snipes were seen in one day by a friend of mine, who shot several. There was a strong north-east wind for a few days previous to their arrival. We have several breeding-places for snipes here; but I think the number seen precludes the possibility of *these* having resorted to the Levels, which they do in severe weather.—*J. B. Ellman; Battel, September 23, 1848.*

Early Appearance of the Fieldfare.—On the 12th of September, while taking a walk, when about a mile and a half from the town, I observed a flock of seven individuals. I am certain of their identity, as they passed over-head at no great elevation, so that I could clearly distinguish them.—*James C. Garth; Knaresborough, October 17, 1848.*

Singular Variety of the Robin (Sylvia rubecula).—On the 5th of the present month, about four miles from here, on the road towards Borobridge, I shot a curious specimen of the redbreast. It has the whole of the primaries and secondary feathers of the wings *white*; the whole of the tail feathers are also of the same colour, with the exception of the tips, which are a dirty gray or smoke colour. It had a curious appearance flying about, just before I shot it. I was a little disappointed, on picking it up, to find that it was a young bird of the present year, and therefore not in very good feather.—*Id.*

Note on Wheatears (Sylvia Œnanthe).—March 27th, 1848. Saw wheatears to-day on Durdham Down, all male birds. I believe this to be precisely, or within a very few days of, the period when I have been accustomed to see them first on the Sussex coast, Rottingdean, near Brighton, though I perceive that the only note I have made of their arrival in that district in March is A. D. 1846, when one cock wheatear was observed on the 24th of that month. No wheatears were visible on Durdham Down a few days previous to March 27th. About that date the weather was calm, the wind generally from the north, or nearly so, though occasionally appearing to shift to other quarters for a short time. It is rather curious that the migrations of the bird to two such distant places should so nearly coincide.—*Arthur Hussey; Clifton, Gloucestershire.*

Beautiful and extraordinary Variety of the Chaffinch (Fringilla cœlebs).—I am indebted to Mr. Thomas Hall, naturalist, of No. 7, City Road, for the sight of a bird which displays the most remarkable deviation from normal colouring that I ever recollect to have witnessed. Mr. Yarrell, who has kindly examined the specimen, pronounces it a chaffinch: he says, "Character, measurements, and the markings on three primary feathers in each wing, seem to prove that the bird sent is a variety of the chaffinch." The following is a general description of the colour: head white, with a slight tinge of cream colour; back and rump golden yellow, as in a brilliant male canary; throat, breast, belly and vent white, the breast with a few fawn-coloured

feathers, like those in the breast of a hen chaffinch; scapulars, smaller wing-coverts and greater wing-coverts generally white, but a few of them black; wing-feathers, five exterior white, then three as in the chaffinch, then one white, two dark brown, and the remainder white,—the edges of all are tinged with yellow; tail white, except the second feather on each side, which has a black longitudinal mark. This beautiful bird was shot at Swain's Hill, three miles from Basingstoke, in Hampshire, and was brought to me in the flesh: Mr. Hall has now skinned it, and obligingly offers to show it to any ornithologist who will call on him.—*Edward Newman.*

Is the House Sparrow (Fringilla domestica) injurious or beneficial to Agriculture?
—In the 'Zoologist' for August (Zool. 2188) Mr. Peacock proposes the following question: "Is the sparrow injurious or beneficial to the farmer?" This is a question of so much importance to the agriculture of this country, that I should rejoice to see it for ever settled, and I know of no better medium for adjusting the matter than through the excellent pages of this periodical, where, by having the contributions of practical men from all districts, bearing upon the point, we may ultimately arrive at the truth. I shall detail a plan, devised by intelligent "matter-of-fact" men, for testing the merits of the bird under consideration in this district. For many years this parish has suffered much from the common sparrow; and in the winter of 1847 this plan was laid for his destruction, and so far it has succeeded remarkably well. Still it is only an experiment: the object was to see whether the neighbourhood would be best with or without the sparrow, and of course time will be required to test it fully. The agriculturists of this neighbourhood formed themselves into an "Association for Killing Sparrows," and each member, under pain of forfeit, was obliged to produce six birds every fortnight for nine months in each year. The result was, that during the first two months 1000 sparrows were sent to the Secretary; and, as near as can be calculated, the number for the year will be 3000 or 3500,—a pretty good stock to people about 3400 acres. Up to the present time our corn has suffered comparatively little, and garden peas entirely escaped,—a matter of great moment to a horticultural neighbourhood. Having so good an opportunity of examining the crops and gizzards of the birds killed, I determined to avail myself of it to a considerable extent. I have examined hundreds, at all periods of the year, and am obliged to confess that in the old birds I have never found any insects, but always wheat and barley, occasionally mixed with a few seeds. How much they consume I cannot calculate with accuracy, but in the crops of five birds I have found 180 good, plump and excellent grains of wheat; in six crops 80 grains of barley; and in two others 74 grains of wheat. The number of grains contained in the crop of a bird varied from 2 to 56, according to the time of feeding before they were shot. At a meeting of the Club (consisting of fourteen individuals) each person was of opinion that during the month one sparrow destroyed a quart of corn, so that 1000 sparrows would eat 1000 quarts or 31 strikes, or nearly 4 quarters of corn. This, taken throughout each month of the year, would make 48 quarters, which, if sold in the market at 35s. per quarter, would have fetched £84. This may seem exaggerated, but I do not think it is; for I have known one field (which the owner had neglected to tend) despoiled of about five quarters in a season; and let any person accustomed to agricultural pursuits, when he sees the head-lands of fields destroyed, make his calculation as to the quantity taken, and I fear that he will have reason to agree with me. It has been argued that sparrows in winter obtain their food chiefly from farm-doors, and from straw with which cattle is foddered; but if so, the farmer's fowls, ducks and geese are robbed in the former case,

and his cattle in the latter. It is evident, however, from the appearance of the grains found in their crops,—which are generally remarkably good, plump and excellent,—that it is in a great measure procured from the sides of corn-ricks, in which they burrow almost to the tail, and thus rob the farmer of a portion of that produce which ought to have been sold in the market. To sum up my observations: as far as I can judge the sparrow is an insectivorous bird only when very young, and then his diet is varied with soft green peas, or, as the season advances, milky grain from wheat-fields. For nine months or more of the first year of his existence he feeds on grain, and when reared he exists almost entirely upon it. Anecdotes, I am aware, are on record of the sparrow carrying to its nest great numbers of insects, and these anecdotes are often recorded by persons who are no naturalists, and who mistake the insectivorous hedge accenter for the common sparrow. Look at a sparrow's bill! What is that bill made for? To crack grain or pick up insects? I have penned these observations with reluctance, knowing that our high authorities—Yarrell, Jesse, Knapp, &c.—are of a contrary opinion, and until I examined the subject for myself I coincided with them; but I cannot shut my eyes to facts. I would willingly have recorded in favour of the sparrow a verdict of “not guilty” of the depredations imputed to him, but my evidence is against him. Doubtless this bird was created originally, like other animals, for a wise and useful purpose, and was kept in due bounds by the hawks, owls, and predatory birds, and thus prevented from becoming an annoyance; but in stepped the game-preserver, destroyed the predatory birds, and thus left the sparrow at liberty to increase. Now some other means must be devised for his being kept in subjection. Your readers would render essential service to agriculture if they would give their opinions upon this subject. If the sparrow is a grain-destroyer he ought to be destroyed. Corn that will feed birds will feed men.—*John Joseph Briggs; King's Newton, Melbourne, Derbyshire, September 20, 1848.*

Occurrence of the Hawfinch (Loxia coccothraustes) at Knaresborough.—A specimen of the hawfinch was taken near this place in a trap, during the winter of 1846-7; I have another which was shot at Scriven, about a mile from Knaresborough, in 1836; and a third specimen was seen in company with that last mentioned: it is a rare bird here.—*James C. Garth; Knaresborough, October 17, 1848.*

Proposed alteration of Name in the European White-winged Crossbill, and Occurrence of the American White-winged Crossbill in England.—In preparing a list of Godalming birds as part of the Appendix to the ‘Letters of Rusticus,’ I have been very greatly assisted by Mr. Salmon and Mr. Henry Doubleday, whose revision was absolutely necessary before I could publish the mass of interesting materials in my hands. The name of the white-winged crossbill having been added to the list by Mr. Salmon, Mr. Doubleday informs me that the bird which has occurred several times in Britain, and which is figured and described in Yarrell’s ‘British Birds,’ is totally distinct from the American white-winged crossbill: in this opinion Mr. Yarrell coincides, and in his note to me adds the interesting information that a single specimen of the American bird has also occurred in Britain,—he believes in Dorsetshire. The nomenclature of the two species may therefore stand thus:—

The European bird or Two-barred Crossbill = the *Loxia bifasciata* of Nilsson, the *Crucirostra bifasciata* of Brehm, the *Loxia tenuoptera* of Gloger, and the *Loxia leucoptera* of Jenyns, Gould, Eyton, and Yarrell.

The North-American bird or White-winged Crossbill = the *Loxia leucoptera* of Gmelin, Wilson, Bonaparte, and Richardson.—*Edward Newman.*

Discoloured Eggs of the Green Woodpecker (Picus viridis).—Eggs of the green woodpecker similar in colour to those mentioned by Mr. Newton (Zool. 2229), as having been taken near Elveden last spring, are by no means of rare occurrence, and I believe the peculiarity is attributable to their having been stained by the moisture in the rotten part of the tree in which the eggs are placed. On the 18th of May, 1846, I took five such eggs from a nest in a decayed elm, two of which I gave to Mr. Bartlett (well known to the readers of the 'Zoologist' as the discoverer of the new duck, Paget's pochard), and he afterwards told me that all the colour was very easily removed by simply wiping them with a little wet tow. This is certainly the case; for one of the remaining three was cleaned with the end of the finger dipped in water. It certainly is not a proof that the colour is only an accidental stain; for the large dark blotches on the eggs of the guillemot are very easily removed with moisture, which colour I believe no one will consider as extraneous; but there is other evidence for believing it to be so in the woodpecker's eggs, viz., that the feathers of the birds themselves are often much stained, and even matted together in the breeding-season, looking much as though they were stained or painted with liver-colour on the upper tail-coverts and rump, and then varnished: this was the case with the male of the nest from which my eggs were taken.—*R. F. Tomes; Welford, Stratford-on-Avon, September 22, 1848.*

Discoloured Eggs of the Green Woodpecker.—In reply to the inquiries of your correspondent, Mr. Hansell (Zool. 2258), respecting a previous note of mine (Zool. 2229), I have to say that the branch of the tree—an ash—in which the woodpecker's nest he refers to was, is so situated that it is impossible that any rain could soak into it, and that there is not now, nor was at the time the eggs were in it, any fungus whose juice could have stained them. The appearance of the eggs is at once, I think, conclusive to show that they could not have been coloured in any way after they were laid. The colouring matter, as in the case of sparrow-hawks' and other eggs, easily comes off, and being of a thin substance the polish of the surface is seen through it. I have within a few days been told by a good naturalist, to whom I showed the eggs in question, that some years ago he received from a person in this neighbourhood a similar egg; and further, he was told by an occasional contributor to the 'Zoologist,' that he this year obtained a coloured specimen of the egg of this woodpecker. For your own and your correspondent's satisfaction, I send you the names of the persons I have referred to; but as I have not their leave for your so doing, I beg you will not print them. If your correspondent is still dissatisfied, I should recommend him next spring, when the sap of the ash tree is up, to try whether it has any effect in colouring a bird's egg.—*Alfred Newton; Elveden, October 9, 1848.*

Occurrence of the Hoopoe (Upupa Epops) and other rare British Birds near Banff.—In September, 1832, a specimen of the hoopoe was caught alive in the plantations surrounding Duff House, which is in the immediate vicinity of Banff. Of these plantations, which extend for miles in all directions, the public at large are, by the well-known liberality of the Earl of Fife, allowed, at all times and without any exceptions, to have the unrestricted range. From the circumstance of its having been secured by the hand, the specimen in question had in all probability been, more or less, in a state of exhaustion; and, through some casualty connected with the weather, had probably been driven beyond the limits of its usual haunts. It was obtained by those who were unacquainted with its habits, and it did not survive for any time. In its stomach were found the remains of insects. This is the only instance, within my knowledge, of the hoopoe having been seen or heard of in this particular part of the

country. Now, however, that attention is beginning in some measure to be paid to the works of creation, even in localities where, at no distant period, such an employment of leisure time would have been regarded as an unquestionable proof of insanity, it is not improbable that we shall be found to have had, all along, both plants and animals among us, of the presence of which we had previously neither knowledge nor suspicion. As an example of this, I may mention that, in the beginning of July this year, a nest of the quail (*Coturnix dactylisonans*) was found in a field of hay, in the neighbouring parish of New Deer, about six miles from where I reside. It contained twelve eggs, all of them resembling the first of the three varieties figured by Mr. Hewitson. The people on the farm say that they meet with a similar nest every year: they consider the eggs as those of a curious kind of corn crake (landrail), and nothing will convince them to the contrary. A specimen, in very fine condition, of the red-necked grebe (*Podiceps rubricollis*) was shot, during the bygone spring, on an artificial lake in this parish. On this lake, a good many years ago, a specimen was obtained of the pochard or male dunbird (*Fuligula ferina*), which is very rarely to be seen in this northern part of the country. I had lately brought me for examination a specimen of a Totanus or inland sandpiper, which to my surprise answered in every respect to the description given by the most accurate writers on the male ruff (*Machetes pugnax*), in the autumnal plumage of the first year. It was shot in an extensive moss in this parish; and the character of the surface and of the vegetation, in the particular spot where it was obtained, is exactly the same as that of the localities which the ruff is said to frequent amid the Lincolnshire fens. I am not aware that the ruff has been previously heard of in this part of the kingdom.—James Smith; *Manse of Monquhitter by Turriff, Aberdeenshire, October 2, 1848.*

Occurrence of the Roller (Coracias garrula) near Banff.—On the 25th of September last there was shot in the woods of Boyndie, near Banff, a specimen of the roller. This is a bird of very great rarity, and has only been met with seven or eight times in the whole kingdom. With the exception of one, which was obtained many years ago near to the loch of Strathbeg,—an extensive sheet of water on the sea-coast between Peterhead and Fraserburgh,—I am not aware of any specimen having been previously seen or heard of in this part of the country. The one to which I am alluding proved on dissection to be a female. Although the plumage would seem in some parts not to have reached its full maturity, it nevertheless exhibits colouring of exquisite beauty, particularly on the under wing-coverts, the upper portion of which is of a delicate pale sea-green, and the remainder of the richest purplish or mazarine blue, changing in hue and intensity according to the light in which it is viewed. The line in which these birds are to be found is farther to the east than our own island; and as a strong gale had blown from that quarter for some days previously to its being killed, it is probable that it had, in this manner, been driven out of its usual course. It was, however, in no danger from famine, for its stomach was completely crammed with the remains of the insects on which it had been feeding: these consisted of dragon-flies (*Libellula*), of the black and red burying-beetle (*Necrophorus*), of the small green or grass beetle, but principally of the common dor or clock (*Geotrupes stercorarius*): one small brown beetle with a black head, which is to be met with on trees and bushes, was found entire. When shot, the bird was in the act of flying from one tree to another.—*Id.*

Swallows (Hirundo rustica) dug out of Hedge-banks.—There is a farmer named Waters, residing at Catsfield (adjoining parish), who informs me he has frequently

(some years ago) dug swallows out of banks in winter, while widening the ditches in the brooks, &c.—*J. B. Ellman ; Battel, September 23, 1848.*

Swallows, and a Plea on their Behalf.—May 4th, 1848, saw the first swallow, a solitary bird. About the 8th of May saw another at a different place. May 12th, saw two swallows together this morning, and four in company about the same spot in the evening. After the last date swallows gradually become more numerous, though not only was their first appearance unusually late, but up to the period of my quitting Clifton, June 13th, very few birds, comparatively, were to be seen. Indeed my impression is, that, generally, the race of swallows has greatly diminished, owing, partially at least, to the silly and cruel practice of shooting them. Silly, because they are not good practice in the art of shooting, since, by taking them at a particular moment of their flight, they may be killed with the greatest certainty; while the same individual could not hit a sparrow or a partridge. The pastime of swallow shooting must also be pronounced wanton cruelty, because they not simply are among the most inoffensive of the feathered tribe, but even must be acknowledged valuable benefactors to us, when we recollect the myriads of troublesome and noxious insects which—their sole food—every swallow, old and young, consumes during its short sojourn with us. In proportion as the birds are destroyed of course those insects will increase,—a just retribution for the cruelty now reprobated. There is another consideration, too, which appears to be utterly disregarded by swallow-shooters; it is the number of nestlings which they, for mere amusement, render orphans, and condemn to the lingering and painful death of cold and starvation.—*Arthur Hussey ; Clifton, Gloucestershire.*

A Martin (Hirundo urbica) with the middle Tail-feather white.—I shot a house-martin last August which had the middle feather of the tail perfectly white.—*George Wolley ; Huyton, September 29, 1848.*

Partiality of the Common Guinea-fowl for Toads.—Most animals have, I believe, a deep-rooted antipathy to the toad. The dog turns away from it in disgust; and I have more than once seen my own dog, when urged to attack one, drop the reptile from his mouth in such a manner as to show that he felt the effects of the acrid excretion which exudes from its skin when irritated. That the guinea-fowl, however, has a partiality to toads is a fact which may not, perhaps, have been generally observed. I have constantly seen our guinea-fowls attack a toad, and have watched them beating it for some minutes against the ground with their beaks, until almost motionless, when they bolt it. I have never seen them serve a frog thus: either from its greater agility it keeps out of their reach, or they prefer the toad. I have often seen ducks, on the contrary, eat frogs, but not toads.—*A. B. Hemsworth ; Thropham Hall, Norfolk, October 13, 1848.*

Description of a Sandpiper which was shot near Bootle, in September, 1847.—This bird was shot as it rose from a pit, in company with some snipes, by a man named John Ashton, then in the employment of Mr. George Thomas, bird-stuffer, London Road, Liverpool, in whose possession it now is. The striking peculiarity of this bird is the great length of its legs and neck. Beak one inch and one-eighth; from the point to the gape one inch and three-eighths, nearly black, darkest at the tip; irides nearly black; over the eye a white streak; the top of the head, beak and wing-coverts dark brown, with light brown spots, triangular in shape on the margin of each feather, some of the spots more elongated, and those on the wing-coverts nearly white; primaries black, the shaft of the first white; upper tail-coverts white, barred with dark brown, the centre ones having three bars, the outer ones but two; tail-feathers white,

with seven bars of dark brown, the tip white, the two centre feathers being longest, and the two next longer than the rest; chin white; neck, throat and breast ash-brown, each feather on the throat and breast having the centre brown; belly, vent and centre feathers of the under tail-coverts white, outside ones barred with dark brown, shafts black; legs and toes dark green. From the carpal joint to the end of the first quill-feather, which is the longest, five inches; heels, including the claw, three-eighths of an inch; tail two inches. I give the length of the legs, and the colour of the beak, irides, legs and toes, from the statement of Mr. G. Thomas, who had the bird the day on which it was shot. I could not obtain the whole length of the bird, as the dimensions, except of the legs, were not taken till after it was mounted, and I did not see it till lately.—*Nicholas Cooke; Hope Mills, Warrington, September 28, 1848.*

[“I should suppose the bird to be the wood sandpiper (*Totanus glareola*): the words ‘from the carpal joint to the end of the first quill-feather, which is the longest, five inches,’ are the exact words used by Yarrell in his account of *T. glareola*, and the general description applies to this species, although many of them are very similar in markings: *Henry Doubleday*,” whose opinion I solicited.—*Edward Newman.*]

Occurrence of the Red-throated Diver (Colymbus septentrionalis) near Guildford.—A specimen of the red-throated diver was captured yesterday near Guildford, and has been brought here to be preserved: this is an addition to the list of Surrey birds.—*J. D. Salmon; Godalming, October 19, 1848.*

Occurrence of the Ivory Gull (Larus eburneus) at Hastings.—I saw a specimen of this rare bird at Hastings, a few weeks ago, in the possession of a bird-stuffer, who informed me that it was shot near that place not long since.—*J. B. Ellman; Battel, September 23, 1848.*

Answer respecting Larus maximus.—Dr. Morris is quite correct (Zool. 2071), when he presumes that by black-backed gull (*L. maximus*), (Zool. 515) is meant the lesser black-backed gull (*L. fusca*). I beg to thank Dr. M. for pointing out the mistake.—*G. Gordon; Elgin, October, 1848.*

Note on the Natterjack (Bufo calamita) and Tree Frog (Hyla arborea).—I observed the young of the natterjack (distinguishable when quite small by the narrow stripe of gamboge-yellow along the back) sparingly, on short heath, at Oakhanger, near Selborne, and much more abundantly the next day about the edges of Wolmer Pond, in September last. The son of the head keeper, who lives close by the pond, assured me that these toads were very noisy in the spring and summer nights, at which seasons they resort to the water for the purpose of breeding, and near which the young ones continue for some time after their transformation from the tadpoles, when the adults have retired to drier situations, and dispersed themselves abroad, as I did not meet with a full or even half-grown individual at either station. I remarked the natterjack in plenty last year, about the margin of Peat Pond, on Shalford Common, Surrey (Mr. Salmon's second English station for *Cyperus fuscus*), and transported a colony of a hundred or more youthful toads to a congenial-looking sandy heath in this island; but what has been their fate since, I have not had the means of ascertaining. I may take occasion to mention in this place that I last year turned out eighteen examples of the

European tree frog (*Hyla arborea*), kindly supplied to me from Germany (Berlin) by Mr. W. Pamplin, into a swampy willow thicket of considerable size, in this island, having a reedy pond in the centre, with a clear ditch and water meadows on one side, and overhung on the other by a steep wooded bank and dry copse,—thus giving the colonists choice of sun, shade, water and covert, as their nature may require in turn. I have great hope of their becoming naturalized here, provided the snakes do not molest them; for of the birds I have not much fear, the cover being so thick.—*W. A. Bromfield, M.D., F.L.S.; Eastmount, Ryde, Isle of Wight, October 6, 1848.*

[On both these reptiles I have a few words to say; and first, as regards the natterjack. I have paid great attention to these interesting animals ever since the year 1826, when I first observed them on Blackheath. In 1841 I brought some from that locality to my little garden at Peckham, where they soon established themselves in subterranean galleries, which they have occupied ever since: every night they make predacious excursions, and are very frequently detected wending their way home some hours after daylight, when they are very apt to be picked up and handled by the children, into whom no wholesome fear of fire- and poison-spitting on the part of frogs and toads has ever been instilled: it is certainly an unwonted sight to see a little boy of two years of age taking up a huge toad or a natterjack, and fondling him as a very nice playfellow. Believing that nothing was previously known of the breeding of the natterjack, I have obtained the tadpoles in a very young state, and have watched their various transformations, making drawings of them in every stage until they finally leave the water and disperse themselves over the land. Frogs, toads and natterjacks remain on the margins of the pool where they were hatched for some days after acquiring their new apparatus for breathing, but they instinctively hurry back to the water for protection if alarmed; but when a soaking shower has fallen, and the earth has become saturated with wet, they disperse in all directions, wandering far and wide from their birth-place, regardless of the most manifest danger or the most obvious obstructions: on these occasions they may be seen everywhere crossing roads and pathways, and hence the never-to-be-eradicated belief that they have fallen from the clouds. I think the month of July is the general one for the grand dispersion of the frogs,—a shower at the end of July fixing the great days with the toads; but I have never yet seen the natterjack on the move until the 15th of September, and this year they have been unusually late: I have natterjack tadpoles still unchanged on the 12th of October. I purpose publishing a series of records, with dates, dimensions and figures, when my observations shall be complete. Like Dr. Bromfield, I am indebted to Mr. Pamplin for specimens of the tree frog; but instead of liberating, I have kept them in confinement, with a view of observing their “manners and customs:” they are most interesting and beautiful creatures, and seem well reconciled to their fate; in fact they perch on a window-sill, and employ themselves in leaping at and devouring the flies that come within reach, in such a free and easy manner as to give one quite the idea that they consider themselves at home. I hope Dr. Bromfield will record from time to time, in the ‘Zoologist,’ the results of the interesting experiment he has tried of naturalizing this frog in the Isle of Wight.—*Edward Newman.*]

Reptiles swallowing their Young.—My attention has been called to a paragraph in the last number (Zool. 2268), relative to the question as to whether reptiles swallow their young when threatened with coming danger. When in Scotland, last autumn, I saw what at the time satisfied me that vipers really possessed this faculty, though the evidence was scarcely as conclusive as might be wished. Walking along a sunny

road, I saw a viper lying on the parapet; she had apparently just been killed by a blow from a stick: five or six young ones, about four inches long, were wriggling about their murdered parent, and one was making its way out of her mouth at the time when I approached. Whether this was the first time that the young ones had seen the light, or whether they were only leaving a place of temporary refuge, I leave to more experienced observers than myself to determine.—*E. F. Percival*; 64, *Lincoln's Inn Fields*, October 17, 1848.

On the Habits of Ameiva dorsalis, a Jamaica Lizard.—"This species is one of the most common of the reptiles of Jamaica, and is as beautiful as abundant. Its colours are striking, but not showy; its countenance has a very meek expression, not altogether unlike that of a deer or antelope. All its motions are elegant and sprightly: when it is proceeding deliberately, its body is thrown into lateral curves the most graceful imaginable; but when alarmed, its swiftness is so excessive that it appears as if it literally flew over the ground, and the observer can scarcely persuade himself that it is not a bird.

"The ground lizard (as it is provincially termed) is generally diffused, as far as my knowledge of the island extends, but chiefly affects sandy places. Near the seaside it is particularly abundant, beneath the shore-grasses, nickers, and black-withes that form an almost impenetrable belt of thicket a few yards above high-water mark. Here the dry leaves and twigs are rustled all day long by the fleet-footed Ameiva, as it shoots hither and thither among them, or walks at leisure, picking up little atoms of food. Though excessively timid, so that it is almost impossible to approach them, I have found that by sitting down in their haunts, and remaining for some time perfectly still, one and another will come forth from their coverts and pursue their avocations without fear. They pick among the sand exactly in the manner of a bird, and scratch it away with the long and flexible fore-feet, using them alternately as the common fowl does, now and then stopping and raising the hind-foot to scratch the head.

"I am told (and have no doubt of the fact) that it digs for itself the burrow in which it resides. It is accused too of digging still deeper, to get at the seed-corn when just sprouting, and of eating the germinating grain to such an extent as to be mischievous. Of such as I dissected, however, I found the food to consist principally of insects. Thus on one occasion the stomach was occupied with a whole cockroach, and the intestines were filled with fragments of another. In the stomach of one shot in November I found many dipterous maggots, fragments of beetles, and one or two seeds of berries. A third contained cockroaches, a caterpillar, some maggots and small beetles.

"On one or two occasions, as when one has been suddenly alarmed, I have noticed a singular action in this animal, which then carries its body the whole height of the legs above the ground, and runs as it were on tiptoe in a very ludicrous manner.

"While speaking of its progression, I may observe, that though the toes are not formed like those of the Geckos and Anoles, for holding on against gravity, I have seen a large Ameiva run with facility on the side of a dry wall, along the perpendicular surfaces of the large stones."—*P. H. Gosse*, in '*Proceedings of the Zoological Society*,' No. 181, p. 24.

The Great Sea-Serpent.—I beg to send you the following extract from my journal. "H.M.S. *Dædalus*, August 6, 1848, lat. 25° S., long. 9° 37' E., St. Helena 1015 miles. In the 4 to 6 watch, at about 5 o'clock, we observed a most remarkable fish

on our lee quarter, crossing the stem in a S.W. direction: the appearance of its head, which, with the back fin, was the only portion of the animal visible, was long, pointed, and flattened at the top, perhaps ten feet in length, the upper jaw projecting considerably; the fin was perhaps twenty feet in the rear of the head, and visible occasionally: the captain also asserted that he saw the tail, or another fin, about the same distance behind it: the upper part of the head and shoulders appeared of a dark brown colour, and beneath the under jaw a brownish white. It pursued a steady, undeviating course, keeping its head horizontal with the surface of the water and in rather a raised position, disappearing occasionally beneath a wave for a very brief interval, and not apparently for purposes of respiration. It was going at the rate of perhaps from twelve to fourteen miles an hour, and when nearest was perhaps one hundred yards distant: in fact it gave one quite the idea of a large snake or eel. No one in the ship has ever seen anything similar, so it is at least extraordinary. It was visible to the naked eye for five minutes, and with a glass for perhaps fifteen more. The weather was dark and squally at the time, with some sea running."—*Edgar Drummond, Lieut. H.M.S. Dædalus; Southampton, October 28, 1848.*

The Great Sea-Serpent.—"When the *Dædalus* frigate, Captain M'Quhæ, which arrived at Plymouth on the 4th inst., was on her passage home from the East Indies, between the Cape of Good Hope and St. Helena, her captain, and most of her officers and crew, at four o'clock one afternoon, saw a sea-serpent. The creature was twenty minutes in sight of the frigate, and passed under her quarter. Its head appeared to be about four feet out of the water, and there was about 60 feet of its body in a straight line on the surface. It is calculated that there must have been under water a length of 33 or 40 feet more, by which it propelled itself at the rate of 15 miles an hour. The diameter of the exposed part of the body was about 16 inches, and when it extended its jaws, which were full of large jagged teeth, they seemed sufficiently capacious to admit of a tall man standing upright between them."—*'Times,' October 9, 1848.*

The Great Sea-Serpent.—"The following very interesting report respecting the appearance of the extraordinary animal seen by some of the officers and crew of Her Majesty's ship *Dædalus* has been forwarded to the Admiralty by Captain M'Quhæ:—

"Her Majesty's ship *Dædalus*, *Hamoaze*, October 11.

"Sir,—In reply to your letter of this date, requiring information as to the truth of a statement published in 'The Times' newspaper, of a sea-serpent of extraordinary dimensions having been seen from Her Majesty's ship *Dædalus*, under my command, on her passage from the East Indies, I have the honour to acquaint you, for the information of my Lords Commissioners of the Admiralty, that at 5 o'clock, P. M., on the 6th of August last, in latitude 24° 44' S., and longitude 9° 22' E., the weather dark and cloudy, wind fresh from the N.W., with a long ocean swell from the S.W., the ship on the port tack heading N.E. by N., something very unusual was seen by Mr. Sartoris, midshipman, rapidly approaching the ship from before the beam. The circumstance was immediately reported by him to the officer of the watch, Lieutenant Edgar Drummond, with whom and Mr. William Barrett, the Master, I was at the time walking the quarter-deck. The ship's company were at supper.

"On our attention being called to the object it was discovered to be an enormous serpent, with head and shoulders kept about four feet constantly above the surface of

the sea, and as nearly as we could approximate by comparing it with the length of what our maintopsail yard would show in the water, there was at the very least 60 feet of the animal à fleur d'eau, no portion of which was, to our perception, used in propelling it through the water, either by vertical or horizontal undulation. It passed rapidly, but so close under our lee quarter that had it been a man of my acquaintance I should have easily recognised his features with the naked eye; and it did not, either in approaching the ship or after it had passed our wake, deviate in the slightest degree from its course to the S.W., which it held on at the pace of from 12 to 15 miles per hour, apparently on some determined purpose.

“The diameter of the serpent was about 15 or 16 inches behind the head, which was, without any doubt, that of a snake; and it was never, during the twenty minutes that it continued in sight of our glasses, once below the surface of the water: its colour a dark brown, with yellowish white about the throat. It had no fins, but something like the mane of a horse, or rather a bunch of seaweed, washed about its back. It was seen by the quartermaster, the boatswain’s mate, and the man at the wheel, in addition to myself and officers above-mentioned.

“I am having a drawing of the serpent made from a sketch taken immediately after it was seen, which I hope to have ready for transmission to my Lords Commissioners of the Admiralty by to-morrow’s post. PETER M’QUHÆ, Captain; to Admiral Sir W. H. Gage, G.C.H., Devonport.”—*Times*, October 13, 1848.

The Great Sea-Serpent.—“Mary Ann, of Glasgow, Glasgow, October 19.

“I have just reached this port, on a voyage from Malta and Lisbon, and my attention having been called to a report relative to an animal seen by the master and crew of Her Majesty’s ship *Dædalus*, I take the liberty of communicating the following circumstance:—

“When clearing out of the port of Lisbon, on the 30th of September last, we spoke the American brig *Daphne*, of Boston, Mark Trelawney master. She signalled for us to heave to, which we did; and, standing close round her counter, lay-to while the mate boarded us with the jollyboat, and handed a packet of letters to be despatched per first steamer for Boston on our arrival in England. The mate told me that when in lat. 4° 11' S., long. 10° 15' E., wind dead north, upon the 20th of September, a most extraordinary animal had been seen: from his description it had the appearance of a huge serpent or snake, with a dragon’s head. Immediately upon its being seen, one of the deck guns was brought to bear upon it, which having been charged with spike-nails, and whatever other pieces of iron could be got at the moment, was discharged at the animal, then only distant about forty yards from the ship; it immediately reared its head in the air, and plunged violently with its body, showing evidently that the charge had taken effect. The *Daphne* was to leeward at the time, but was put about on the starboard tack and stood towards the brute, which was seen foaming and lashing the water at a fearful rate: upon the brig nearing, however, it disappeared, and, though evidently wounded, made rapidly off at the rate of 15 or 16 knots an hour, as was judged from its appearing several times upon the surface. The *Daphne* pursued for some time, but the night coming on the master was obliged to put about and continue his voyage.

“From the description given by the mate, the brute must have been nearly 100 feet long, and his account of it agrees in every respect with that lately forwarded to the Admiralty by the captain of the *Dædalus*. The packet of letters to Boston,

* This communication was subsequently stated to be a hoax. — The former accounts however are not impeached.

I have no doubt, contains the full particulars, which, I suppose, will be made public.

“There are letters from Captain Trelawney to a friend in Liverpool, which will probably contain some further particulars, and I have written to get a copy for the purpose of getting the full account. JAMES HENDERSON, Master, Broomielaw, Berth No. 4.”—*Times*, October 23, 1848.

[Doubtless the sagacious production of some self-styled philosophical naturalist, who is pledged to one of the hypothetical modes of explaining away the existence of a sea-serpent, and who hopes by a hoax of this kind to throw discredit on Captain M'Quhæ's statement.—*E. Newman*.]

The Great Sea-Serpent.—“What an extraordinary creature the *Dædalus* seems to have fallen in with! The description recalls to my mind an extraordinary appearance we witnessed in the *Blossom*, in crossing the South Atlantic. I took it for the trunk of a large tree, and before I could get my glass upon deck it had disappeared, and I could nowhere find it—fresh breezes at the time. Captain BEECHEY to Sir Francis Beaufort.”—*Illustrated London News*, October 28, 1848.

The Great Sea-Serpent.—“13, Great Cumberland Street, October 25, 1848.

“MY DEAR SIR,—I regret that I have not found the volumes referred to in our conversation respecting the recent authentication of the existence of the sea-serpent by Captain M'Quhæ, of H.M. frigate *Dædalus*, but I will give you that part of the information which I remember best. Several years ago, a museum was established at Bergen, in Norway, the directors of which have, amongst other subjects of interest, turned their study to Natural History in general, and to the elucidation of some of its more doubtful or less known subdivisions. The question of the sea-serpent's existence had previously attracted the attention of several scientific men in Northern Europe; and my friend, the late Dr. Newmann, Bishop of Bergen—a man much and justly respected for his learning, research and energy—made it the subject of inquiry within the last twenty or twenty-five years among his clergy and those of the adjoining dioceses. The amount of proof thus collected was sufficient to convince any one, however sceptical, as it is not mere hearsay evidence, but the testimony of known and respectable persons in various walks of life. One of the most striking statements is made by some fishermen, who saw the animal quite close to them, and of whom one more hardy than the rest struck it with a boat-hook, upon which it immediately gave them chase; and, had they not been very near a small island or rock, on which they took refuge, in all probability they would have been destroyed.

“The size of the sea-serpents seen in the Norwegian fjords varies much; and I do not now remember what the dimensions of the largest are said to be. As far as I can tax my memory, none of them lately seen are larger than that described by Capt. M'Quhæ. The one seen by the fishermen above alluded to was, I think, not above 70 feet long. I have written to my colleagues in the direction of the Bergen Museum; and as soon as their answer arrives I will give you a more full account.

“There are, I believe, several varieties of the reptile known as the sea-serpent, but almost all the accounts agree as to the existence of a *mane*, and as to the great size of the eye. In several of the fossil reptiles somewhat approaching the sea-serpent in size and other characteristics, the orbit is very large; and in this respect, as well as in having short paws or flappers, the descriptions of the northern sea-serpents agree with the supposed appearance of some of the antediluvian species. A great part of the disbelief in the existence of the sea-serpent has arisen from its being supposed to be the

same animal as the Kraken, or rather from the names having been used indiscriminately.

“ In concluding this hurried statement, allow me to add my own testimony as to the existence of a large fish or reptile of cylindrical form (I will not say sea-serpent). Three years ago, while becalmed in a yacht between Bergen and Sogn, in Norway, I saw (at about a quarter of a mile astern) what appeared to be a large fish ruffling the otherwise smooth surface of the fjord, and, on looking attentively, I observed what looked like the convolutions of a snake. I immediately got my glass, and distinctly made out three convolutions, which drew themselves slowly through the water; the greatest diameter was about ten or twelve inches. No head was visible, and from the size of each convolution I supposed the length to be about thirty feet. The master of my yacht (who, as navigator, seaman and fisherman, had known the Norwegian coast and North Sea for many years), as well as a friend who was with me, an experienced Norwegian sportsman and porpoise-shooter, saw the same appearance at the same time, and formed the same opinion as to form and size. I mention the fact of my friend being a porpoise-shooter, as many have believed that a shoal of porpoises following each other has given rise to the fable, as they called it, of the sea-serpent. J. D. MORRIES STIRLING; to Captain Hamilton, R.N., Secretary to the Admiralty.”—*Illustrated London News*, October 28, 1848.

The Great Sea-Serpent.—“ With regard to the existence of the so-called sea-serpent, I would beg to remark, that, although it is highly improbable that an ophidian, or true snake, of the dimensions and marine habits described by our voyagers, now exists, yet there is nothing to forbid the supposition that there are unknown living forms of cartilaginous fishes, presenting the general configuration and proportions of the animals figured in the last Number of the ‘*Illustrated London News*.’—*Gideon Algernon Mantell*, in ‘*Illustrated London News*,’ November 4, 1848.

The Great Sea-Serpent.—“ I have never entertained a doubt regarding the existence of some unknown animal of vast dimensions, whose angel-visits have astonished the fortunate observers or excited the incredulous smile of the authorities of science.

“ No one inclined, I believe, to give due importance to the known facts of geology, can entertain the probability of any relationship between ‘the great sea-serpent’ and the extinct Plesiosaurs; nor do the recorded phenomena require such an hypothesis.

“ Reasoning from the known occurrence of a huge cartilaginous fish (*Squalus*) on our Orcadian shores, I am of opinion that when caught the sea-serpent will turn out to be a shark; and I conceive it is just as probable that a shark may carry the head for short periods out of the water, as that the flying fishes should occasionally step aboard to look at us land-monsters.

“ It is always unsafe to deny positively any phenomena that may be wholly or in part inexplicable; and hence I am content to believe that one day the question will be satisfactorily solved. Might we not obtain some information from the accurate Sars regarding the Norwegian tradition? Could not the surgeon of the *Dædalus* throw some light on the subject?”—*A. G. Melville*; * *London*, November 6, 1848.

The Great Sea-Serpent.—“ Amidst the numerous suggestions of those of your correspondents who are disposed to admit the account given by Captain M’Quhæ of the

* In a private letter to Dr. Cogswell, but published with permission of both gentlemen.

marine monster seen by him and several of his brother officers, on the 6th of August last, as not altogether imaginary, it appears surprising that it should not have occurred to any one to suggest an explanation of some apparent anomalies in the account, which have no doubt tended to stagger the belief even of some readers who are not disposed to assume (any more than myself) that a number of officers in Her Majesty's navy would deliberately invent a falsehood, or could have been deceived in an appearance which they describe with such precise details.

“One of the greatest difficulties on the face of the narrative, and which must be allowed to destroy the analogy of the motions of the so-called ‘sea-serpent’ with those of all known snakes and anguilliform fishes, is that no less than 60 feet of the animal were seen advancing *à fleur d'eau*, at the rate of from twelve to fifteen miles an hour, without it being possible to perceive, upon the closest and most attentive inspection, any undulatory motion to which its rapid advance could be ascribed. It need scarcely be observed that neither an eel nor a snake, if either of those animals could swim at all with the neck elevated, could do so without the front part of its body being thrown into undulation by the propulsive efforts of its tail.

But, it may be asked, if the animal seen by Captain M'Quhæ was not allied to the snakes or to the eels, to what class of animals could it have belonged? To this I would reply, that it appears more likely that the enormous reptile in question was allied to the gigantic Saurians, hitherto believed only to exist in the fossil state, and, among them, to the Plesiosaurus.

“From the known anatomical character of the Plesiosauri, derived from the examination of their organic remains, geologists are agreed in the inference that those animals carried their necks (which must have resembled the bodies of serpents) above the water, while their progression was effected by large paddles working beneath—the short but strong tail acting the part of a rudder. It would be superfluous to point out how closely the surmises of philosophers resemble, in these particulars, the description of the eye-witnesses of the living animal, as given in the letter and drawings of Capt. M'Quhæ. In the latter we have many of the external characters of the former, as predicated from the examination of the skeleton. The short head, the serpent-like neck, carried several feet above the water, forcibly recal the idea conceived of the extinct animal; and even the bristly mane in certain parts of the back, so unlike anything found in serpents, has its analogy in the Iguana, to which animal the Plesiosaurus has been compared by some geologists. But I would most of all insist upon the peculiarity of the animal's progression, which could only have been effected, with the evenness and at the rate described, by an apparatus of fins or paddles not possessed by serpents, but existing in the highest perfection in the Plesiosaurus. F. G. S.”—*'Times,'* November 2, 1848.

[Will the writer oblige me with his name?—*E. N.*]

The Great Sea-Serpent.—“As some interest has been excited by the alleged appearance of a sea-serpent, I venture to transmit a few remarks on the subject, which you may or may not think worthy of insertion in your columns. There does not appear to be a single well-authenticated instance of these monsters having been seen in any southern latitudes; but in the north of Europe, notwithstanding the fabulous character so long ascribed to Pontoppidan's description, I am convinced that they both exist and are frequently seen. During three summers spent in Norway I have repeatedly conversed with the natives on this subject. A parish priest residing on Romsdal fjord, about two days' journey south of Drontheim, an intelligent person,

whose veracity I have no reason to doubt, gave me a circumstantial account of one which he had himself seen. It rose within 30 yards of the boat in which he was, and swam parallel with it for a considerable time. Its head he described as equalling a small cask in size, and its mouth, which it repeatedly opened and shut, was furnished with formidable teeth; its neck was smaller, but its body—of which he supposed that he saw about half on the surface of the water—was not less in girth than that of a moderate sized horse. Another gentleman, in whose house I stayed, had also seen one, and gave a similar account of it: it also came near his boat upon the fjord, when it was fired at, upon which it turned and pursued them to the shore, which was luckily near, when it disappeared. They expressed great surprise at the general disbelief attaching to the existence of these animals amongst naturalists, and assured me that there was scarcely a sailor accustomed to those inland lakes, who had not seen them at one time or another. OXONIENSIS.—‘*Times*,’ November 4, 1848.

[Will the writer oblige me with his name?—*E. N.*]

The Great Sea-Serpent.—“The sketch [this was a reduced copy of the drawing of the head of the animal seen by Captain M’Quhæ, attached to the submerged body of a large seal, showing the long eddy produced by the action of the terminal flippers] will suggest the reply to your query ‘whether the monster seen from the *Dædalus* be anything but a Saurian?’ If it be the true answer it destroys the romance of the incident, and will be anything but acceptable to those who prefer the excitement of the imagination to the satisfaction of the judgment. I am far from insensible to the pleasures of the discovery of a new and rare animal, but before I can enjoy them certain conditions, *e. g.*, reasonable proof or evidence of its existence, must be fulfilled. I am also far from undervaluing the information which Captain M’Quhæ has given us of what he saw. When fairly analysed it lies in a small compass; but my knowledge of the animal kingdom compels me to draw other conclusions from the phenomena than those which the gallant captain seems to have jumped at. He evidently saw a large animal moving rapidly through the water, very different from anything he had before witnessed—neither a whale, a grampus, a great shark, an alligator, nor any of the larger surface-swimming creatures which are fallen in with in ordinary voyages. He writes, ‘On our attention being called to the object it was discovered to be an enormous serpent’ (read ‘animal’) ‘with the head and shoulders kept about four feet constantly above the surface of the sea. The diameter of the serpent’ (animal) ‘was about 15 or 16 inches behind the head; its colour a dark brown, with yellowish white about the throat.’ No fins were seen (the captain says there were none; but from his own account he did not see enough of the animal to prove his negative). ‘Something like the mane of a horse, or rather a bunch of sea-weed washed about its back.’ So much of the body as was seen was ‘not used in propelling the animal through the water, either by vertical or horizontal undulation.’ A calculation of its length was made under a strong preconception of the nature of the beast. The head, *e. g.*, is stated to be ‘without any doubt that of a snake;’ and yet a snake would be the last species to which a naturalist conversant with the forms and characters of the heads of animals would refer such a head as that of which Captain M’Quhæ has transmitted a drawing to the Admiralty, and which he certifies to have been accurately copied in the ‘*Illustrated London News*’ for October 28, 1848, p. 265. Your lordship will observe that no sooner was the captain’s attention called to the object than ‘it was discovered to be an enormous serpent,’ and yet the closest inspection of as much of the body as was visible, *à fleur d’eau*, failed to detect any undulations of the body, although such

actions constitute the very character which would distinguish a serpent or serpentiform swimmer from any other marine species. The foregone conclusion, therefore, of the beast's being a sea-serpent, notwithstanding its capacious vaulted cranium and stiff inflexible trunk, must be kept in mind in estimating the value of the approximation made to the total length of the animal, as 'at the very least 60 feet.' This is the only part of the description, however, which seems to me to be so uncertain as to be inadmissible in an attempt to arrive at a right conclusion as to the nature of the animal. The more certain characters of the animal are these:—Head, with a convex, moderately capacious cranium, short obtuse muzzle, gape of the mouth not extending further than to beneath the eye, which is rather small, round, filling closely the palpebral aperture; colour, dark brown above, yellowish white beneath; surface smooth, without scales, scutes, or other conspicuous modifications of hard and naked cuticle. And the captain says, 'Had it been a man of my acquaintance I should have easily recognised his features with my naked eye.' Nostrils not mentioned, but indicated in the drawing by a crescentic mark at the end of the nose or muzzle. All these are the characters of the head of a warm-blooded mammal; none of them those of a cold-blooded reptile or fish. Body long, dark brown, not undulating, without dorsal or other apparent fins; 'but something like the mane of a horse, or rather a bunch of sea-weed washed about its back.' The character of the integuments would be a most important one for the zoologist in the determination of the class to which the above defined creature belonged. If any opinion can be deduced as to the integuments from the above indication, it is that the species had hair, which, if it was too short and close to be distinguished on the head, was visible where it usually is the longest, on the middle line of the shoulders or advanced part of the back, where it was not stiff and upright like the rays of a fin, but 'washed about.' Guided by the above interpretation of the 'mane of a horse, or a bunch of sea-weed,' the animal was not a cetaceous mammal, but rather a great seal. But what seal of large size, or indeed of any size, would be encountered in latitude $24^{\circ} 44'$ south, and longitude $9^{\circ} 22'$ east—viz. about 300 miles from the western shore of the southern end of Africa? The most likely species to be there met with are the largest of the seal tribe, *e. g.* Anson's sea-lion, or that known to the southern whalers by the name of the 'sea-elephant,' the *Phoca proboscidea*, which attains the length of from 20 to 30 feet. These great seals abound in certain of the islands of the southern and antarctic seas, from which an individual is occasionally floated off upon an iceberg. The sea-lion exhibited in London last spring, which was a young individual of the *Phoca proboscidea*, was actually captured in that predicament, having been carried by the currents that set northward towards the Cape, where its temporary resting-place was rapidly melting away. When a large individual of the *Phoca proboscidea* or *Phoca leonina* is thus borne off to a distance from its native shore, it is compelled to return for rest to its floating abode after it has made its daily excursion in quest of the fishes or squids that constitute its food. It is thus brought by the iceberg into the latitudes of the Cape, and perhaps further north, before the berg has melted away. Then the poor seal is compelled to swim as long as strength endures; and in such a predicament I imagine the creature was that Mr. Sartoris saw rapidly approaching the *Dædalus* from before the beam, scanning, probably, its capabilities as a resting-place, as it paddled its long stiff body past the ship. In so doing, it would raise a head of the form and colour described and delineated by Captain M'Quhæ, supported on a neck also of the diameter given; the thick neck passing into

an inflexible trunk, the longer and coarser hair on the upper part of which would give rise to the idea, especially if the species were the *Phoca leonina*, explained by the similes above cited. The organs of locomotion would be out of sight. The pectoral fins being set on very low down, as in my sketch, the chief impelling force would be the action of the deeper immersed terminal fins and tail, which would create a long eddy, readily mistakeable by one looking at the strange phenomenon with a sea-serpent in his mind's eye for an indefinite prolongation of the body.

“It is very probable that not one on board the *Dædalus* ever before beheld a gigantic seal freely swimming in the open ocean. Entering unexpectedly from that vast and commonly blank desert of waters it would be a strange and exciting spectacle, and might well be interpreted as a marvel; but the creative powers of the human mind appear to be really very limited, and on all the occasions where the true source of the ‘great unknown’ has been detected—whether it has proved to be a file of sportive porpoises, or a pair of gigantic sharks—old Pontoppidan’s sea-serpent with the mane has uniformly suggested itself as the representative of the portent, until the mystery has been unravelled.

“The vertebræ of the sea-serpent described and delineated in the ‘*Wernerian Transactions*,’ vol. i., and sworn to by the fishermen who saw it off the Isle of Stronsa (one of the Orkneys), in 1808, two of which vertebræ are in the Museum of the College of Surgeons, are certainly those of a great shark, of the genus *Selache*, and are not distinguishable from those of the species called ‘basking-shark,’ of which individuals from 30 feet to 35 feet in length have been from time to time captured or stranded on our coasts.

“I have no unmeet confidence in the exactitude of my interpretation of the phenomena witnessed by the captain and others of the *Dædalus*. I am too sensible of the inadequacy of the characters which the opportunity of a rapidly passing animal, ‘in a long ocean swell,’ enabled them to note, for the determination of its species or genus. Giving due credence to the most probably accurate elements of their description, they do little more than guide the zoologist to the class, which, in the present instance, is not that of the serpent or the saurian.

“But I am usually asked, after each endeavour to explain Captain M’Quhæ’s sea-serpent, ‘Why there should not be a great sea-serpent?’—often, too, in a tone which seems to imply, ‘Do you think, then, there are not more marvels in the deep than are dreamt of in your philosophy?’ And freely conceding that point, I have felt bound to give a reason for scepticism as well as faith. If a gigantic sea-serpent actually exists, the species must of course have been perpetuated through successive generations from its first creation and introduction into the seas of this planet. Conceive, then, the number of individuals that must have lived and died, and have left their remains to attest the actuality of the species during the enormous lapse of time from its beginning to the 6th of August last! Now, a serpent, being an air-breathing animal, with long vesicular and receptacular lungs, dives with an effort, and commonly floats when dead; and so would the sea-serpent, until decomposition or accident had opened the tough integument and let out the imprisoned gases. Then it would sink, and, if in deep water, be seen no more until the sea rendered up its dead, after the lapse of the æons requisite for the yielding of its place to dry land—a change which has actually revealed to the present generation the old saurian monsters that were entombed at the bottom of the ocean of the secondary geological periods of our earth’s history. During

life the exigencies of the respiration of the great sea-serpent would always compel him frequently to the surface; and when dead and swollen—

‘Prone on the flood, extended long and large,’

He would

‘Lie floating many a rood; in bulk as huge

As whom the fables name of monstrous size,

Titanian, or Earth-born, that warr’d on Jove.’

Such a spectacle, demonstrative of the species if it existed, has not hitherto met the gaze of any of the countless voyagers who have traversed the seas in so many directions. Considering, too, the tides and currents of the ocean, it seems still more reasonable to suppose that the dead sea-serpent would be occasionally cast on shore. However, I do not ask for the entire carcass. The structure of the back bone of the serpent tribe is so peculiar, that a single vertebra would suffice to determine the existence of the hypothetical Ophidian; and this will not be deemed an unreasonable request when it is remembered that the vertebræ are more numerous in serpents than in any other animals. Such large, blanchèd, and scattered bones on any sea-shore would be likely to attract even common curiosity; yet there is no vertebra of a serpent larger than the ordinary pythons and boas in any museum in Europe.

“Few sea coasts have been more sedulously searched, or by more acute naturalists (witness the labours of Sars and Lovén) than those of Norway. Krakens and sea-serpents ought to have been living and dying thereabouts from long before Pontopidan’s time, to our day, if all tales were true; yet have they never vouchsafed a single fragment of their skeleton to any Scandinavian collector; whilst the other great denizens of those seas have been by no means so chary. No museums, in fact, are so rich in the skeletons, skulls, bones and teeth of the numerous kinds of whales, cachalots, grampuses, walruses, sea unicorns, seals, &c., as those of Denmark, Norway and Sweden; but of any large marine nondescript or indeterminable monster they cannot show a trace.

“I have inquired repeatedly whether the natural-history collections of Boston, Philadelphia, or other cities of the United States, might possess any unusually large ophidian vertebræ, or any of such peculiar form as to indicate some large and unknown marine animal; but they have received no such specimens.

“The frequency with which the sea-serpent has been supposed to have appeared near the shores and harbours of the United States has led to its being specified as the ‘American sea-serpent;’ yet out of the 200 vertebræ of every individual that should have lived and died in the Atlantic since the creation of the species, not one has yet been picked up on the shores of America. The diminutive snake, less than a yard in length, ‘killed upon the sea-shore,’ apparently beaten to death, ‘by some labouring people of Cape Ann,’ United States (see the 8vo. pamphlet, 1817, Boston, page 38), and figured in the ‘Illustrated London News,’ October 28, 1848, from the original American memoir, by no means satisfies the conditions of the problem. Neither do the Saccopharynx of Mitchell, nor the Ophiognathus of Harwood—the one 4½ feet, the other 6 feet long; both are surpassed by some of the congers of our own coasts, and, like other murænoid fishes and the known small sea-snakes (*Hydrophis*), swim by undulatory movements of the body.

“The fossil vertebræ and skull which were exhibited by Mr. Koch in New York and Boston as those of the great sea-serpent, and which are now in Berlin, belonged to different individuals of a species which I had previously proved to be an extinct

whale; a determination which has subsequently been confirmed by Professors Müller and Agassiz. Mr. Dixon, of Worthing, has discovered many fossil vertebræ in the Eocene tertiary clay at Bracklesham, which belong to a large species of an extinct genus of serpent (*Palæophis*), founded on similar vertebræ from the same formation in the Isle of Sheppey. The largest of these ancient British snakes was 20 feet in length; but there is no evidence that they were marine.

“The sea saurians of the secondary periods of geology have been replaced in the tertiary and actual seas by marine mammals. No remains of Cetacea have been found in lias or oolite, and no remains of Plesiosaur, or Ichthyosaur, or any other secondary reptile, have been found in Eocene or later tertiary deposits, or recent, on the actual sea-shores, and that the old air-breathing saurians floated when they died has been shown in the ‘Geological Transactions’ (vol. v., second series, p. 512). The inference that may reasonably be drawn from no recent carcass or fragment of such having ever been discovered, is strengthened by the corresponding absence of any trace of their remains in the tertiary beds.

“Now, on weighing the question, whether creatures meriting the name of ‘great sea-serpent’ do exist, or whether any of the gigantic marine saurians of the secondary deposits may have continued to live up to the present time, it seems to me less probable that no part of the carcass of such reptiles should have ever been discovered in a recent or unfossilized state, than that men should have been deceived by a cursory view of a partly submerged and rapidly moving animal, which might only be strange to themselves. In other words, I regard the negative evidence from the utter absence of any of the recent remains of great sea-serpents, krakens, or Enaliosauria, as stronger against their actual existence than the positive statements which have hitherto weighed with the public mind in favour of their existence. A larger body of evidence from eye-witnesses might be got together in proof of ghosts than of the sea-serpent. RICHARD OWEN, Lincoln’s Inn Fields, November 9, 1848.”—*From the ‘Times.’*

The Great Sea-Serpent. By C. COGSWELL, M.D., F.L.S., &c.

“The great sea-snake’s the subject of my verse :
 For though mine eyes have never yet beheld him,
 Nor ever shall desire the hideous sight,
 Yet many accounts of men, of truth unstained,
 Whose every word I firmly do believe,
 Show it to be a very frightful monster.
 * * * * *
 Methinks he seems another Behemoth,
 Or the Leviathan, who doth despise
 All arms, as swords, and guns, and glittering spears,
 For iron is to him like straw or flax,
 And copper like the twigs that bend or break,
 For thus he is described in Holy Writ.”

Mr. John Dass, quoted by Pontoppidan.

It grows more and more necessary every day to acknowledge the *existence* of a vast form of marine animal bearing some resemblance to a serpent. The recent letter of

Captain M'Quhæ to the Admiralty (Zool. 2307), allows of no other alternative than either to admit the evidence, or invent some still more extraordinary hypothesis to explain it away. The form and bearings of the stranger have been duly reported at head quarters, and no more deserve to be called in question, as regards the fidelity of the narrator, than the existence of any commissioned "Snake" or "Anaconda," whose station and appointments we find recorded in the daily press. No preternatural messenger in "the shape that tempted Eve,"—he passes by on the other side without manifesting the slightest degree of interest in human affairs; no phantom progeny of light and air, although affecting latterly the same haunts as the "Flying Dutchman,"—he steers himself by compass, and is the herald of no signal disaster; no herd of porpoises disporting all in a row, and joined together by some *Dædalian* process of imagination into the semblance of unity—his head is "decidedly that of a snake,"—he carries it for twenty minutes at a time out of the water; and his body is seen for a continuous length of sixty feet on a level with the surface. From the standard jest of the witty, and the discarded problem of the wise, he has shown himself likely to be "no joke" for his physical prowess, and well deserving the gravest scientific inquiry.

To show what a formidable and unyielding front has been heretofore opposed to him, I shall quote a passage from the article under the head of 'Serpents,' in the last edition of the 'Encyclopedia Britannica' (1842): "No proper proof has yet been adduced of any of these species (sea-serpents) inhabiting the 'American Ferry,' as we see that world of waters now named since the steaming days of the British Queen and Great Western. M. Schlegel characterises the statement as an assertion *que je puis contredire avec certitude*:" and the author adds, "we shall content ourselves by stating that sea-serpents have not yet been observed in the Atlantic Ocean." The following notice occurs in a popular compilation of the animal kingdom just issued from the press (1848): "Sea-serpent (or the Kraken). The appearance of this *fabulous* monster is thus accounted for by Mr. A. Adams. In the Sooloo seas I have often watched the phenomenon which first gave rise to the marvellous stories of the great sea-serpent, viz., lines of rolling porpoises resembling a long string of buoys oftentimes extending seventy, eighty, or one hundred yards. These constitute the so-named protuberances of the monster's back, keep in close single file, progressing rapidly along the calm surface of the water," &c. Had the *fabulous* serpent in Æsop, who complained of being "a multis hominibus pessumdatus," been aware of what was laid up in the fates for his aquatic relative, no doubt he would have ceased to repine at his own hard lot.

The official corroboration of the fundamental truth of these "marvellous stories" is important, not only because the author under the circumstances must at least receive credit for the most entire sincerity, but from the encouragement thus given to other credible witnesses to bring forward their evidence. There is no reason to suppose that even this would have been readily laid before the public, but for the desire expressed by the Board of Admiralty to learn the truth of an accidental rumour. As regards any additional light thrown on the natural history of the animal, it is not more satisfactory than many of the accounts we already possess. Indeed the paragraphs which precede the captain's letter in the 'Zoologist,' viz., the extract from the journal of Lieut Drummond, and the first public rumour as it appeared in the 'Times,' tend rather to confuse the official statement, and will no doubt be used to create suspicions of its accuracy. The communication which follows it, purporting to give a report of another specimen seen by an American captain, is supposed to be a "hoax," and as such is worthy of preservation from the ingenuity it displays.

When a doctrine is assumed to be fanciful, people seldom take the trouble to inquire into its history and merits. This may account for the sea-serpent being commonly confounded with a very different prodigy, too exacting in its claims for the most extravagant credulity of modern days to regard with favour. As seen above, its name and that of kraken are popularly used as synonymous. And nevertheless, Pontoppidan, Bishop of Bergen, whose 'Natural History of Norway' (translated into English in 1755) is the usual standard of authority on both subjects, treats of them separately in appropriate sections of his work. Of the kraken he says, "I come now to the third, and incontestably the largest sea-monster in the world: it is called kraken, krasen, or, as some name it, krabben, that word being applied by way of eminence to this creature." Its back or upper part he describes as truly gigantic, being a mile and a half or more in circumference, and it is provided with limbs so strong as to be able to pull boats and the smaller sailing craft under water. Some deem the original of this story to have been a Sepia or Medusa of enormous size; others set it down for an optical illusion; Pontoppidan himself thinks that "in all probability it may be reckoned of the polypi or of the starfish kind." One cannot help being reminded, on reading the above, of the passage in Milton where he compares Satan, "prone on the flood," to

"That sea-beast

Leviathan, which God of all his works
Created hugest that swim the ocean stream;
Him haply slumb'ring on the Norway foam,
The pilot of some small night-founder'd skiff
Deeming some island, oft, as seamen tell,
With fixed anchor in his scaly rind
Moors by his side under the lee, while night
Invests the sea, and wished-for morn delays."

Commentators have been divided in opinion whether Milton supposed the leviathan to be a crocodile or a whale. The former idea derives little support from the text; the whale, which has only lately been divested of its "scaly rind," puts forward more plausible pretensions: nevertheless, the vast bulk of the creature alluded to, and its position, "slumbering on the Norway foam," suggest the inquiry whether the poet may not have had in his mind a tradition of the kraken. I may mention here that the Norwegian bishop believed that the leviathan of Job and Isaiah had been detected in the sea-serpent. Of the latter animal Pontoppidan says, "The sea-ormen, the sea-snake, *Serpens marinus magnus*, called by some in this country the Aale Tust, is a wonderful and terrible sea-monster, which extremely deserves to be taken notice of. This creature, particularly in the North Sea, continually keeps himself in the bottom of the water, except in the months of July and August, which is their spawning time, and then they come to the surface in calm weather, but plunge into the water again as soon as the wind raises the least wave." He assures us that there were hundreds of experienced and credible fishermen in Norway who could testify to their having annually seen such animals, and that the traders from the North were as much surprised to hear of any doubt being entertained of their existence as if they were asked "whether there be such things as eels or cod."

It would serve little purpose to occupy these pages with mere copies of the published narratives and depositions tending to prove the existence of the animal under

our consideration. Whatever discrepancies may perplex us with regard to subordinate details, it is important to remember that the one ruling form, that of a serpent, is the foundation of all the descriptions. The form may vary—in length, perhaps, from forty to a hundred feet and upwards; in the relative dimensions of the head and different parts of the body; in the presence or absence of a mane or paddles; and more particularly with respect to an appearance of dorsal arches or elevations, rising above the water like a row of casks or buoys. The greater part of the evidence on the subject is contained, I believe, in Pontoppidan's 'Natural History of Norway' (1755), the 'Report of a Committee of the Linnæan Society of New England relative to a large Marine Animal, supposed to be a Serpent, seen near Cape Ann, Massachusetts, in August, 1817' (Boston, 1817), and the last volume of 'The Zoologist' (1847). In the Scandinavian work the principal witness is Captain L. de Ferry, of the Navy, who thus describes an individual which he saw while in a boat, rowed by eight men, within six miles of Molde, in a calm hot day of August, 1747. "The head of the snake, which it held more than two feet out of the water, resembled that of a horse. * * It had black eyes, and a long white mane that hung down from the neck to the surface of the water. Besides the head and neck we saw seven or eight folds or coils of the snake, which were very thick, and, as far as we could guess, there was about a fathom distance between each fold." This declaration was attested on oath, before the civil functionaries, by two of the crew. A drawing is annexed, copied under the inspection of a clergyman, from a sketch of one seen by Governor Benstrup, representing a serpent-like form with the head raised, and a long train of arches stretching beyond the picture.

The Report of the Linnæan Society of New England contains the results of an inquiry by three of the members, concerning the existence and appearance of a sea-serpent said to have been seen in the harbour of Gloucester, near Cape Ann, about thirty miles from Boston. The depositions of eleven witnesses, "of fair and unblemished characters," were taken and certified on oath before local magistrates, one of whom personally saw the object, and corroborates their statements on the material points. It remained under observation from the 10th to the 28th of August inclusive. The head is severally compared to that of a "sea-turtle," a "rattle-snake, but nearly as large as the head of a horse," and a "serpent." Five of the deponents observed dorsal protuberances; two do not allude to them; while to the remaining four, whose experience agrees with that of the magistrate who saw the animal, the back and body appeared straight. The mode of progression was generally *vertical*, like that of a caterpillar, from which circumstance the magistrate *believes the appearance of protuberances to have arisen*. The total length is variously estimated at from fifty to a hundred feet. Colour, a dark brown, and, according to some, the under part of the head and neck was marked with white. No mane was observed. To the above are added notices of sea-serpents seen by a clergyman and others on the coast of Maine for many previous years. The Report concludes with a description of a snake captured in the neighbourhood of Cape Ann, and supposed to be the young of the larger specimen: from appearing to possess the like peculiarity of dorsal arches, it was included with its supposed parent under a new genus, and named the *Scoliophis Atlanticus*. Further research, however, seems to have shown that the two animals were not connected.

The tenor of the late observations in Norway recorded in the 'Zoologist' (Zool. 1604) certainly might justify the inference that these so remarkable prominences are

not persistent, but depend, as suggested by the American functionary, on the mode of progression practised at the moment. Anybody that has watched the lithe and varied curves of an otter in the water can have no difficulty in reconciling together the different kinds of undulation attributed to the sea-serpent. There is one particular of rare occurrence worthy of notice, in one of these later accounts, calling to mind a peculiarity in the description of the animal seen by Mr. Egede, a Greenland missionary, and furnished to us, with a copy of the figure, by Pontoppidan. This creature, of the unusual length of 600 feet, "had under its body two flaps, or perhaps two broad fins." One of the recent narratives also states of the progressive movement, that it appeared to be produced "by the help of two fins" (Zool. 1607). Thus is offered a possible solution of the difficulty occasioned by Captain M'Quhæ's specimen having advanced at a rapid rate, with 60 feet of the body *à fleur d'eau*, without any visible undulation.

Here I may refer to 'The Description of an Animal stranded on the Island of Stronsa, in the year 1808,' given in the first volume of the 'Wernerian Transactions,' by the late eminent Dr. Barclay. Evidently disposed to believe that this animal was a sea-serpent, Dr. Barclay indignantly repudiates the opinion of Mr. Home, that it was nothing more than a shark (*Squalus maximus*). Figures of the two are shown in juxtaposition, for the purpose of contrasting them, and to all appearance their respective peculiarities are quite sufficient to entitle them to distinctive appellations. The Orkney animal, in fact, bears a curious resemblance to a *Plesiosaurus*, with six legs. Nevertheless, anatomists have decided that a shark it really was, the anomalies being accounted for by the circumstance of the drawing having been taken from hearsay and under the supervision of persons who only saw the original in a very imperfect state. The "animal of Stronsa" and the "Scoliophis Atlanticus" leave us equally in the dark with regard to the physical economy of the sea-serpent; that is, unless the solution offered by Drs. Mantell and Melville (Zool. 2310) shall prove to be correct.

From what precedes it is evident, *First*, that the notion of the sea-serpent is not a mere growth of unlettered and credulous superstition, since it has been repeated and confirmed by parties than whom it would be difficult to select any more worthy of confidence, with this sole objection—that none of them have been naturalists. The critical eye of a Müller or an Owen would determine its true affinities in a moment. *Secondly*, that if we do the justice of rejecting all extraneous ideas, and confine ourselves to what strictly relates to the object in question, there is a consistent tendency in nearly all the different narratives to invest it with the true characters of the Reptilian class. *Thirdly*, that if there be any truth in the idea that the animal spends most of its time under water, only rising to the surface in calm weather during the summer months, this—however difficult to conceive of an air-breathing creature—in a great measure accounts for the unfrequency of its occurrence. But are there no other forms, even of the highest stage of organization, which have been able to conceal themselves from the scrutiny of naturalists? Not to speak of the minor accessions of unknown species, coming in to adorn our collections and extend the limits of science, it deserves to be borne in mind that perhaps the very chief of all the Quadrumana (*Troglodytes gorilla* of Savage), the being that holds the foremost rank in the scale next to man, is one of the most recent contributions of the African Fauna. At the beginning of this century, a cetaceous animal (*Physeter bidens* of Sowerby), sixteen feet long, was cast ashore on the coast of Elginshire. The species had been previously undescribed, and not another example is commonly believed to have since occurred.

From the difficulty of assigning it a place, it has been the subject of no fewer than four or five generic appellations, and is finally referred, by my friend Dr. Melville, to the *Delphinorhynchus micropterus* of Dumortier, two other specimens of which only exist, the one *stranded* at Havre, the other at Ostend. Were this animal known only by tradition, is it improbable that naturalists would have refused it their sanction, under an impression that a species of such individual magnitude could not possibly have escaped being captured and subjected to their criticism? And yet the recognition of the great *Physeter bidens* is purely the result of an accident!

If the reptilian nature of this mysterious creature be supposed to have been established, it becomes an interesting speculation to consider how far the stories of terrific dragons, transmitted to us by the ancients, had their origin in realities with which they were more conversant than ourselves. The sea-serpent, if a real existence, is of no modern creation. Our forefathers must have seen it. The utmost length at present allowed to land-snakes is twenty-five feet (Schlegel). Nevertheless, the very important part sustained by the serpent in the old mythologies,—its imposing magnitude and prowess, as celebrated by historians and poets,—and its consequence in the romantic annals of the middle ages, will instil a suspicion that, perhaps, not the biographers of snakes were mendacious, but their heroes, like those of “the last minstrel,” have changed or disappeared in the progress of civilization. It is without the slightest idea of attaching any overstrained importance to the following passages that I venture to quote them, as proving that the idea of serpents frequenting and traversing the sea was at least not repugnant to ancient prejudices. The avenging ministers of Minerva, crossing the Ægean on their mission to destroy Laöcoon, might be vindicated by an ardent classic as the model from which the moderns have often plagiarised their descriptions of the sea-serpent.

“Ecce autem gemini a Tenedo *tranquilla* per alta
 (Horresco referens) *immensis orbibus* angues
 Incumbunt pelago, pariterque ad litora tendunt :
 Pectora quorum inter fluctus arrecta, *jubæque*
 Sanguinæ exuperant undas ; pars cætera pontum
 Pone legit, sinuatque immensa volumine terga.
 Fit sonitus spumante salo.”—*Virgil*.

The poet, too, is sustained by the naturalist, for here we have Pliny (whose *facts* by the way deserve to have inspired the apophthegm that “truth is stranger than fiction”) telling how the African *dracones* were wont to club together and brave the perils of the Red Sea, in quest of the more luxurious diet of Arabia: “Narratur in maritimis eorum quaternos quinosque inter se cratium modo implexos erectis capitibus velificantes, ad meliora pabula Arabiæ vehi fluctibus.”*—(Plin. Hist. Nat. viii. 13).

* A writer in one of the daily papers, after suggesting whether the animals under discussion might not be full-grown specimens of the *Saccopharynx flagellum* of Dr. Mitchell (described in the ‘Annals of the New York Lyceum of Natural History,’ for March, 1824), or of the *Ophiognathus ampullaceus* of Dr. Harwood (Phil. Trans. 1827), gives Captain M’Quhæ the benefit of a further conjecture, viz., whether some land species, as the boas, among which are individuals “forty feet” in length, may

On a former occasion (Zool. 1841) I took advantage of the rare opportunity afforded for the discussion of the subject by the conductor of this journal, for the purpose of showing, first, that sea-serpents as a family have long been perfectly recognized in science, and that therefore the name itself should inspire no sentiment of ridicule; and next, of remarking that strange as are the properties attributed to the great sea-serpent, there are remains of a former world in our museums which in their perfect state united them all, or nearly all. Encouraged by the Editor's referring them to the Enaliosauri [Zool. LIV. Wrapper] I ventured to name the Plesiosaurus as the marine animal of our acquaintance to which they bear the nearest resemblance. This, although admitted at the time to be a daring breach of the *Draconic* laws of geology,—laws which, having once consigned an organized form to extinction, have very rarely relaxed their rigour,—seemed to be a necessary result of the argument *par voie d'exclusion*: if not a Plesiosaurus what else is it likely to be, allowing the descriptions to be at all correct? Is it an anomalous shark? and does the "animal of Stronsa" after all furnish the real key to the problem? The affirmative side of the question is not without at least two very able supporters (see Zool. 2310); and yet how to reconcile the characteristics of any possible shark with the serpent-like head, curved neck, mane, or certainly very equivocal dorsal fin, and the protuberances so often mentioned, it is difficult to imagine. A recent correspondent of the 'Times' (Zool. 2311) calls attention to the striking resemblance between the sea-serpent and the Plesiosaurus, and is surprised at its never having occurred to any one before. If the signature F.G.S. implies that the writer is a Fellow of the Geological Society, it is satisfactory to find a member of that particular body, whose favour was least to be expected, so pleased with the idea as to be willing to adopt it for his own. It had, however, been repeated and widely circulated by other periodicals. In the words of an elegant contributor in 'Chambers' Edinburgh Journal,' who alludes to it, "one could almost suppose that among the buried learning of the earlier nations there lurked some

not sometimes betake themselves to the sea, or even "transport themselves from one continent to another." The former question need not detain us, as neither of the specimens exceeded six feet in length. The latter, as more likely to meet with favour, deserves remark. Whatever support its author can derive from the passages here quoted is at his disposal, and also the circumstance which he might have adduced of a large boa constrictor having been conveyed to the island of St. Vincent (twisted round *the trunk of a cedar tree*), carried away, as is supposed, from the banks of some South-American river. This occurrence is quoted by Sir Charles Lyell from the Zoological Journal of December, 1827 ('Principles of Geology'). Nevertheless, all idea of the identity of the sea-serpents in question and land-serpents is easily set at rest. In the first place, M. Schlegel (whose authority his translator, Professor Traill, esteems very highly) limits the length of the greatest known serpent to twenty, or, at most, twenty-five feet. Secondly, the largest snakes, as the boas and pythons, are unknown in Norway or the Eastern States of America, the adjoining seas of which are most frequented by "the great sea-serpents." Thirdly, the two hemispheres, whatever community of birds and mammals they may exhibit, never interchange their reptiles. "All the reptiles of the New World constantly belong to species different from those of the Ancient World."—('Physiognomy of Serpents').

knowledge of geology, seeing how their ideas about dragons come to such a conformity in some respects, with the realities of these preadamite reptiles."

The determination of a great marine species, however, and even a knowledge of its habits and influence on the other inhabitants of the deep, are not, as I conceive, the most obvious advantages to be desired from the settlement of this question. Let it be admitted that a huge unknown creature of any description, provided its general appearance is such as to redeem the various historians of the great sea-serpent from the charge of wilful deception, does "swim the ocean stream," and the value of the result cannot be too easily over-estimated. The *cui bono* philosopher, the bugbear of naturalists, will no doubt have been highly amused with the recent excitement about a discovery that at first sight appears of no practical consequence to the interests of man. I know of no subject of research he would be likely to seize upon with more secure self-complacency—nor of one which, though indirectly, supplies a more triumphant answer. To have our failing confidence in the value of human testimony reassured (and no evidence can be more solemn than that which relates to the sea-serpent), is surely no trifling gain of itself. But more than this: no circumstance has tended so emphatically to stamp the "Yankee" character with the stain of a bold and unscrupulous love of fiction and exaggeration as the story of the sea-serpent. Perhaps, on the principle of Mr. Warren's "man about town," who, being called a *splendid sinner*, made it his pride to deserve the title, the thoughtless portion of our Transatlantic family (the generous tribute of an Agassiz is sufficient warrant for the *savans*) may have thence been led to indulge in a dangerous style of humour, through a spirit of bravado. This source of misunderstanding once removed, the American character may afterwards be regarded with more respect, and the people themselves—no longer excited to defy the ridicule they were not able to escape—may sober down to the legitimate standard of reason.

C. COGSWELL.

November, 1848.

The Great Sea-Serpent.—"Professor Owen correctly states [Zool. 2312] that I 'evidently saw a large creature moving rapidly through the water very different from anything I had before witnessed, neither a whale, a grampus, a great shark, an alligator, nor any of the larger surface-swimming creatures fallen in with in ordinary voyages.' I now assert—neither was it a common seal nor a sea-elephant, its great length and its totally differing physiognomy precluding the possibility of its being a 'Phoca' of any species. The head was flat, and not a 'capacious vaulted cranium;' nor had it 'a stiff inflexible trunk'—a conclusion to which Professor Owen has jumped, most certainly not justified by the simple statement, that no 'portion of the 60 feet seen by us was used in propelling it through the water, either by vertical or horizontal undulation.'

"It is also assumed that the 'calculation of its length was made under a strong preconception of the nature of the beast;' another conclusion quite the contrary to the fact. It was not until after the great length was developed by its nearest approach to the ship, and until after that most important point had been duly considered and

debated, as well as such could be in the brief space of time allowed for so doing, that it was pronounced to be a serpent by all who saw it, and who are too well accustomed to judge of lengths and breadths of objects in the sea to mistake a real substance and an actual living body, coolly and dispassionately contemplated, at so short a distance too, for the 'eddy caused by the action of the deeper immersed fins and tail of a rapidly-moving gigantic seal raising its head above the surface of the water,' as Professor Owen imagines, in quest of its lost iceberg.

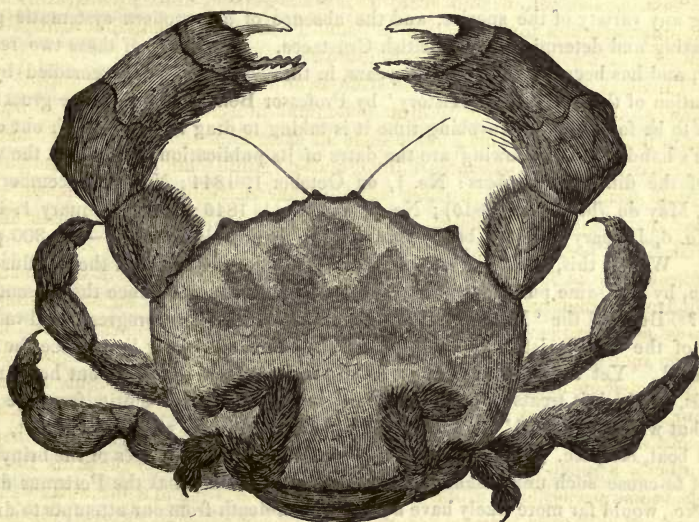
"The creative powers of the human mind may be very limited. On this occasion they were not called into requisition, my purpose and desire being, throughout, to furnish eminent naturalists, such as the learned Professor, with accurate facts, and not with exaggerated representations, nor with what could by any possibility proceed from optical illusion; and I beg to assure him that old Pontoppidan having clothed his sea-serpent with a mane could not have suggested the idea of ornamenting the creature seen from the Dædalus with a similar appendage, for the simple reason that I had never seen his account, or even heard of his sea-serpent, until my arrival in London. Some other solution must therefore be found for the very remarkable coincidence between us in that particular, in order to unravel the mystery.

"Finally, I deny the existence of excitement or the possibility of optical illusion. I adhere to the statements, as to form, colour and dimensions, contained in my official report to the Admiralty, and I leave them as data whereupon the learned and scientific may exercise the 'pleasures of imagination' until some more fortunate opportunity shall occur of making a closer acquaintance with the 'great unknown'—in the present instance most assuredly no ghost. P. M'QUHÆ, late Captain of Her Majesty's ship Dædalus."—*Times*, November 21, 1848.

Peculiarity in the Eyes of Frogs.—When lately examining a specimen of the edible frog, I unintentionally touched one of his eyes, on which he immediately closed that eye, and very soon afterwards the other, and drew them into his head until they were perfectly on a level with its surface: after the lapse of half a minute he slowly opened and projected one eye, and then the other, until both had assumed their ordinary projecting appearance: on repeating the experiment I found that he could withdraw or project them at pleasure, after the manner of a snail's horns, although of course the operation is a much less observable one. I am not certain that the other British frog has the same power, but I think it extremely improbable that a discrepancy in such a character should exist between two species so closely allied.—*Edward Newman*.

Capture of an enormous Trout at Drayton Manor.—A trout weighing upwards of 21 lbs., and measuring 41½ inches in length, was taken, on the 4th of November, in a small tributary of the Trent, on the property of Sir Robert Peel, at Drayton Manor. It was transmitted to London by Sir Robert, and a faithful portrait of the fish has been painted for the honorable baronet by Mr. Waterhouse Hawkins.—*Edward Newman*.

Occurrence of a New British Crab (Dromia vulgaris) on the Coast of Sussex.—As many as nine full-sized specimens of this remarkable crab have been dredged by fishermen on the coast of Sussex: the first of these was noticed by Mr. George Ingall, through whose kindness I had the opportunity of showing it to Mr. Bell, who immediately recognised it as a *Dromia*. Mr. White, of the British Museum, informs me that it is the *Dromia vulgaris* of Milne-Edwards (*Crust.* ii. 173, pl. 21, fig. 5). It is described in Cuvier's '*Règne Animal*' (iv. 69) as the type of *Dromia*, and Rumph (*Mus.* xi. 1) and Herbst (xviii. 103) are referred to. It is the *Cancer dormia* of Linneus; the name of *dormia* perhaps referring to its extremely sedentary and lethargic habits: in this respect it is so remarkable that the carapace is often completely covered with sponges and other marine productions that have attached themselves, and these sometimes inclose the two smaller pairs of legs which are placed on the back of the carapace. This crab is said to be found in the seas of all temperate and tropical regions:



Dromia vulgaris, of the natural size.

the carapace is clothed with a uniform brown velvet down, and the legs, especially the larger or anterior pair, are covered with long hair, except the claws, which are perfectly smooth and polished, of a beautiful rose-colour, and strongly toothed. I much regret that I have had no practice in describing Crustacea, and am therefore at present unable to furnish its technical characters with any degree of precision; but I have made a rough drawing of a specimen of the average size, which will give a tolerably correct idea of its general appearance. The first specimen was taken near Beachy Head: others have been taken off Hastings; and Mr. Bell informs me he has since received others from near Worthing.—*Edward Newman*; October 20, 1848.

Suggestions for obtaining Crustacea.—The ‘Zoologist’ opened its pages for remarks upon the species of every department of the animal kingdom. A glance, however, at the contents of almost any one of its numbers, will show that the space occupied severally by these departments is varied, and bears no due proportion to the number or interest of the beings that fill the different classes. It appears, then, from the correspondents of the Editor, that the quadrupeds have barely had their due in this respect,—the birds perhaps their fair proportion,—while the insects of Britain have caused more communications, if not occupied more space, than all that has been written in the ‘Zoologist’ of other animals. There is one division which seems to have been almost entirely neglected—the Crustacean. The remarks on the members of this department are few and far between. To say they are less beautiful when seen, or less interesting when observed by the eye of the naturalist, than any other objects of his research, is not correct, and must not be sustained as a sufficient answer for the paucity of the remarks regarding them that have hitherto appeared in the ‘Zoologist.’ Two better-founded reasons may be assigned, viz., the difficulty of obtaining any variety of the species, and the absence of any modern systematic guide illustrating and determining the British Crustacea. The latter of these two reasons is now, and has been for the last *four* years, in the course of being remedied by the publication of the admirable ‘History’ by Professor Bell, with which the great fault that is to be found is the provoking time it is taking to drag its slow length out of the printer’s hands. The following are the dates of its publication as given on the wrappers of the different numbers: No. 1, on October 1, 1844; No. 2, December do.; No. 3, May do. (but surely 1845); No. 4, January 1, 1846; No. 5, January 1, 1847; and No. 6, January 1, 1848; being four years in issuing six numbers—not 300 pages in all. Why is this, when Forbes and Hanley’s coloured work on the Mollusca of Britain, by the same publisher, has reached the ninth number since the present year began? But still the ‘History of the British Crustacea’ is in progress, and many a reader of the ‘Zoologist’ may have got its six numbers, or may live to see the work completed. Yet they may exclaim, “Well, we have got the book, but how are the animals, of which it treats so well, to be laid hold of? ‘Call spirits from the vasty deep, but will they come?’” A dredge! “Oh! a dredge requires a yacht, or at least a boat, &c., &c. Moreover, were these in possession, the waves of the briny deep are apt to cause such unpleasant ‘antiperistaltic’ motions, that the *Portunus* depur-tator, &c., would far more likely have a dinner than death from our attempts to dredge them from their submarine retreats.” But the sea shore! “Well, a little may be done in that way; but by those only who live near it, as many years may be spent before a tolerable collection could be formed from among the rejectamenta of the sea.” Let all this be granted. There yet remains another source from which many good specimens and a great variety of Crustaceans may be readily got, viz., from the stomachs of fish—particularly of the cod; and these can be obtained by many who reside at a distance from the shore. By a small *douceur* to the fisherman’s family, and by the assistance of the fish-curer on the coast, the fishmonger of the large town, or of some acquaintance in the fishing village, it is believed that almost any number of these now useless receptacles could be obtained. It may excite at first a little nausea to open up and examine these omnivorous reservoirs, but this will soon pass off; and were it of longer continuance than it is, the stores to be unfolded would amply compensate for all the disagreeable feeling that may for a time arise. It is not only

the Crustacean that is thus gathered from the inaccessible depths of the ocean, but often the rare shell, with its still rarer inhabitant. The radiated animal and the curious zoophyte will also be found congregated together there; all of them no doubt at times mutilated or partly digested, but not unfrequently fresh and complete, as if newly past the voracious jaws.

Through the agency of Widow Scott and her son John, of the fishing village of Stotfield, some stomachs, chiefly of the cod-fish, were procured and examined last winter and spring, fully eight miles inland from the southern shores of the Moray firth, and the following species, of those as yet published in Bell's 'Crustacea,' were identified as denizens of this arm of the German Ocean.

Long-legged Spider Crab (Bell's Hist. p. 2). Three specimens.

Slender Spider Crab (p. 6). Two specimens, mutilated, but enough left to show the species.

Scorpion Spider Crab (p. 13). One specimen, imperfect; but the four small characteristic tubercles distinct on the carapace.

Inachus Dorynchus (p. 16). One specimen.

Slender-legged Spider Crab (p. 18). Five specimens of this very rare Crustacean, some of them perfect, others without the full complement of legs; but the carapace whole in all the five.

Hyas araneus (p. 31). Many specimens of this crab have been found. Six of them were taken from two ordinary-sized stomachs, and measured from $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long. Another, 3 inches long by $2\frac{1}{4}$ broad, was found on the shore of the Moray firth, near Stotfield. It seems to be a Crustacean as often preyed upon by the fish of the firth as any other, perhaps more so, judging from its frequent appearance in the stomachs hitherto examined in this district.

Hyas coarctatus (p. 35). Although not so often met with as the preceding, yet by no means rare. Two very small, probably young, specimens have also been taken and preserved.

Cancer Pagurus, "the parten" (p. 59), and Carcinas Mœnas, "the crab" (p. 76), are far more seldom met with in the stomachs of fish than their numbers along the shores of the firth would lead one to expect. This may be owing to their living nearer land than the feeding-ground of the fish.

Portumnus variegatus. Several rather bleached specimens were last month picked up on the shore near the Covesea lighthouse.

Portunus. At least two species of this genus have been collected. They form a considerable portion of the contents of some stomachs.

Pennant's Ibalia (p. 141). Two specimens of this most beautiful species; one of them complete.

Circular Crab (p. 153). By no means rare. As often found in the stomachs hitherto examined as any other species, excepting Hyas araneus.

Pagurus Bernhardus (p. 171). In great abundance and variety, as to size, among rocks within tide-mark.

Minute Porcelain Crab (p. 193). Found at times very plentiful, both in the stomachs of cod and haddock, and also among the roots of the larger Fuci on the shore, and on the rocks called 'Haliman's skerries.'

Galathea. At least two species of this genus have been found.

Munida. Some years ago a long-armed Munida, if recollection serves aright, was obtained from the roots of Fuci lying on the shore, and sent to Professor Bell.

Homarus vulgaris (p. 242). The lobster, owing to the perseverance with which it is now fished for, is not so often met with as formerly on the Moray firth.

Norway Lobster (p. 251). Twice was this elegant species found; or, rather, part of one specimen on the first occasion, in the shape of its two handsome fore-legs; and, some weeks afterwards, six or seven specimens, some of them entire.

For the short time that has been spent in the search, the above list of species may be regarded as no mean beginning—particularly when they are all from a part of the coast, of which few or no other species but the hermit and common crabs, the “parten” and the lobster, were formerly known to be denizens. In the study of Botany, the distribution and exchange of specimens have been carried to a great extent and with the happiest result. Why has not the same plan been adopted in Zoology? Let this be tried with the Crustaceans; and this little-known but interesting class will by-and-by obtain and hold their due place and portion in the pages of the ‘Zoologist.’ The Norway lobster would be exchanged for a cray-fish of the South; the *Portumnus* of the Pentland firth would take the place in the cabinet of the duplicates gathered in Mount’s Bay. New forms and species would be detected; and thus a more correct and intimate acquaintance with these animals would be gained than what now obtains generally among naturalists.—*G. Gordon; Birnie, by Elgin, N. B., October 10, 1848.*

On the Sense of Touch in Spiders.—Whether the spider is informed of the capture of an insect by the sense of touch or by that of sight has been somewhat disputed. The following circumstances, which I have repeatedly observed during the present month, tend, I think, to prove that it mainly relies upon the former. When a large insect is captured, the spider usually goes directly to the attack; but when a minute insect falls into the net of an *Epeira*, she seems to be at first in doubt as to its position, and applies her feet successively to different radii of the net to determine its direction. It is worthy of notice that this examination is made with more care in windy weather, when the spider seems evidently to discriminate by touch whether the vibration she perceives is caused by the wind or by a captured insect.—*J. W. Slater; Fairfield, October, 1848.*

Capture of Lepidoptera near Northfleet, Kent.—The following list contains a few of my best captures this season, in this district, which may some day be of service to entomologists.

Lithosia aureola. Twenty-four specimens, on the tops of young oaks, May, Swanscombe Wood.

Agrotis corticea. One, on sugar, July, Northfleet.

Agrotis fumosa. Six, on sugar, July and August, Northfleet.

Agrotis nigricans var. *ruris.* Two, on sugar, July and August, Northfleet.

Agrotis tritici. Six, on sugar, July and August, Northfleet.

Agrotis aquilina. Four, on sugar, July and August, Northfleet.

- Graphiphora ravidæ*. One, on sugar, August, Northfleet.
Mythimna conigera. Three, on sugar, July, Northfleet.
Xylophasia characteræa. Three, on sugar, June, Northfleet.
Hadena genistæ. One, on an old stump, May, Swanscombe Wood.
Mamestra nigricans. Five, on sugar, August, Northfleet.
Miselia conspersa. Three, at rest on trunks, May.
Polia tinctoria. Three, on Dartford fence, June.
Polia dysodea. Five, on flowers in our garden, June.
Polia serena. Six, on flowers in our garden, June.
Apatela aceris. Three, at rest on trunks, June.
Erastria fusculella. Two, beat out of oaks, June, Swanscombe Wood.
Biston prodromarius. One, March, on a trunk, Swanscombe Wood.
Hemithea vernaria. Three, June, beat out of bushes, Northfleet.
Cleora bacularia. One, June, beat out of a bush, Greenhithe Wood.
Alcis roboraria. Six, May and June, Greenhithe Wood.
Boarmia extersaria. Four, May and June, Greenhithe Wood.
Phibalapteryx vitalbata. One, September, beat out of a bush in the chalk-pits, Northfleet.
Eupithecia V-ata. Two, May, beat out of a bush in the chalk-pits, Northfleet.
Eupithecia piperata. One, July, Southend, Essex.
Bapta bimaculata. One, Swanscombe Wood, May.
Emmelesia bifasciata. Two, in the chalk-pits, Northfleet, August.
Emmelesia rusticata. Eight, on an elm bush, Northfleet, July.
Ptychopoda ornata. One, chalk-pits, Northfleet, August.
Acidalia pallidaria. Thirty, among rushes, July, Southend, Essex.
Drepana hamula. Two, Swanscombe Wood, May.
Polyopogon barbalis. Twelve, Swanscombe Wood, May and June.
Agrotera flamealis. Eighteen, among broom, Swanscombe Wood, August.
Simaethis lutosa. One, Swanscombe Wood, September.
Pyrausta porphyralis. Fifteen, chalk-pits, Northfleet, on wild marjoram, July.
Margaritia ochrealis. One, Southend, July.
Margaritia cinctalis. One, Southend, July.
Nola monachalis. Five, on trunks, Swanscombe Wood, May and July.
Nola strigulalis. Two, on trunks, Swanscombe Wood, May.
Lozotania roborana. One, beat out of an oak, Swanscombe Wood.
Ditula athiopana. One, beat out of an oak, Swanscombe Wood, August.
Antithesia cupriana, n. sp. One, Swanscombe Wood, July. Mr. Weir took five specimens prior to mine: to him I am indebted for the name.
Spinolota fenella. Twelve, on wormwood, chalk-pits, Northfleet, July.
Pseudotomia artemisiæ. Twelve, on wormwood, chalk-pits, Northfleet, July.
Pseudotomia fraternana. One, Swanscombe Wood, May.
Pseudotomia costipunctana. One, Bean Wood, May.
Anchylopera obtusana. Six, Bean Wood, May.
Anchylopera diminutana. One, Swanscombe, June.
 ——— ? *arcuana*. Six, Greenhithe Wood, June.
Carpocapsa splendana. Two, Greenhithe Wood, July.
Carpocapsa Rheediella. One, Greenhithe Wood, May.

- Calipteryx citrana*. Thirty, July, Southend.
Adela fasciella. Twelve, on marsh mallow, Southend, July.
Adela Latreillella. One, May, Greenhithe Wood.
Sericoris marmoratana, Three, chalk-pits, Northfleet, July.
Eupæcilia maculosana. Twelve, Swanscombe Wood, end of May.
Eupæcilia permistana. Three, Swanscombe Wood, end of May.
Eupæcilia dubitana. Two, chalk-pits, Northfleet, July.
Phitheochroa rugosana. Four, chalk-pits, Northfleet, May.
Depressaria apicella. One, on broom, Swanscombe Wood, September.
Anacamptis maculella. Six, on trunks, Swanscombe Wood, July and August.
Anacamptis tricolorella. Six, on trunks, Swanscombe Wood, July and August.
Anacamptis punctella. One, on a trunk, Swanscombe Wood.
Anacamptis alacella (lentiginosella). One, out of an oak, July.
Anacamptis alternella. One, trunk of an oak, May.
Anacamptis affinis. One, Swanscombe, June.
Anacamptis quadripuncta. Three, chalk-pits, Northfleet, May.
Anacamptis lactella. One, Greenhithe Wood, June.
Anacamptis atra. One, chalk-pits, Northfleet, June.
Anacamptis subocellea (Bentley). This species was in abundance on wild marjoram.

In July one evening I fortunately set a dozen specimens. I cannot find any of our southern entomologists that know the species at all. I give my name on the authority of Mr. Weir, that gentleman having seen a specimen in Mr. Shepherd's collection. I have seen subocellea in Mr. Desvignes' cabinet, which is certainly a very different species.

- Cleodora silacella*. One, chalk-pits, Northfleet, July.
Acompsia tinctella. Two, chalk-pits, Northfleet, July.
Acompsia unitella. Eight, Swanscombe, May.
Acompsia cinerella. One, in broom, Swanscombe, August.
Argyrosetia Brockella. One, Greenhithe Wood, July.
Argyromiges lautella. One, Swanscombe Wood, May.
Argyromiges omissella. Three, chalk-pits, on wormwood, Northfleet, July.
Argyromiges pomonella. Six, chalk-pits, on wormwood, Northfleet, July.
Argyromiges tristrigella. Twelve, on oaks, Swanscombe Wood, September.
Argyromiges Fraëlichella. One, Swanscombe Wood, May.
Argyromiges corylifoliella. Eight, chalk-pits, on whitethorn, May.
Argyromiges spinolella. One, Swanscombe.
Microsetia Stephensella (Douglas). One, Swanscombe, May.
Callisto fusco-cuprella. Four, Swanscombe, May.
Astygus gryphipennella. Two, Swanscombe, May.
Porrectaria lineola. Six, on wormwood, chalk-pits, Northfleet, July.
Aphelosetia triatomea. Three, chalk-pits, Northfleet, July.
Batia Panzerella. Six, Swanscombe Wood, May.
Batia flavifrontella. Two, Swanscombe Wood, June.
Eudorea pallida. Two, below Gravesend, July.
Eudorea resinea. Three, Greenhithe Woods, July.
Phycita nebulella. Nine, chalk-pits, Northfleet, July.
Phycita Evelykella (Doubleday). Eight, among blackthorn, Southend, July.

Oncocera Cardui. Four, on thistles, chalk-pits, Northfleet, July.

Oncocera lotella. Two, Southend, July.

Crambus falsellus. Twelve, on a barn end, Swanscombe, July.

Lampronia auroguttella. One, Greenhithe Wood, July.

Pterophorus megadactylus. Four, Southend, July.—*J. B. Hodgkinson*; 1, *Harman's Cottages, Northfleet, Kent, October 22, 1848.*

Inquiry respecting Colias Edusa.—Have any of your entomological correspondents seen or heard of this insect occurring during the past summer? As far as my recollection serves, the present and the preceding are the only two years in which I have wholly missed a sight of this richly tinted butterfly in this island, where in many seasons it is even common amongst us.—*W. Arnold Bromfield, M.D., F.L.S.; Eastmount, Ryde, Isle of Wight, October 6, 1848.*

Occurrence of Sphinx Convolvuli at Battel.—This afternoon I received a most magnificent female specimen of *Sphinx Convolvuli*. It had not been born more than an hour. The margins and the "OO" on the outer edge of the anterior wing are exceedingly well marked. It was found in the church-yard, on a low tombstone, but though I searched diligently among the grass I could not find the chrysalis.—*J. B. Ellman; Battel, October 7, 1848.*

Occurrence of Deilephila Celerio in Cumberland.—Three specimens of *Deilephila Celerio* have been obtained in Cumberland this year; two near Carlisle, I am informed by a young friend of mine, Mr. John Graham; and a third near Cockermouth, which is now in the cabinet of my friend J. W. Harris, Esq., of Pass Castle.—*J. B. Hodgkinson; Northfleet, Kent, October, 1848.*

Occurrence of Lophopteryx carmelita in Cumberland.—My friend Mr. Allis captured a pair of this rare *Bombyx* in April last; one on a birch stump, the other on an old wall in a birch wood, near Barrow House, Keswick.—*Id.*

Occurrence of Graphiphora pyrophila and Agrotis nebulosa in Cumberland.—My father obtained three or four fine specimens of *Graphiphora pyrophila* in the west of Cumberland, taken near Maryport on the Solway Frith. Mr. Allis has a pair in his possession which were captured in the same district, and a specimen of *Agrotis nebulosa* (ripæ): this is the first time that the latter species has been taken in the north.—*Id.*

Occurrence of Ehippiphora turbidana and Phycita abietella at Carlisle.—My brother took above a score of *Ehippiphora turbidana*, last June or July, among the common butterbur (*Tussilago Petasites*). My father took a fine specimen of *Phycita abietella* at Newby Cross, near Carlisle, last July: he beat it out of a fir.—*Id.*

Capture of Agrotis pascua at Deal.—On a recent visit to this interesting locality (last month) I was fortunate enough to take four specimens of this rare *Noctua*, on blades of grass on the sand-hills, in the dusk of evening, evidently from their fine condition, only just emerged from the chrysalis: this species appears rare, but widely distributed, having occurred to my knowledge at Lewes, Little Hampton, Ventnor, Bideford, Swanage, Yarmouth, and Lowestoft. I tried sugar, but could not get them to come to it, my only visitors being *Agrotis valligera*, *Calocampa vetusta*, and a few common species. I also met with *Lixus bicolor*, *Hypera fasciculosa*, and several other rarities, recorded by Mr. Dawson (*Zool.* 2275).—*Samuel Stevens; Vine Cottage, Blyth Lane, Hammersmith, Oct. 26, 1848.*

Aberrant Economy in Tortrix viridana.—During an entomological ramble last

June, my attention was arrested by the leafless and lifeless appearance of a venerable oak, which in spring I had observed covered with luxuriant foliage. It stood alone, and was not within fifty yards of any other tree. Curious to know the cause of this unexpected change, I went to examine it, and found the trunk completely covered with a fine transparent web; and on closer inspection observed the crevices which time had formed in the bark filled (I might say) with small pupæ. In hopes of supplying some *desiderata* I carried off vast numbers of them, but to my surprise they all turned out to be examples of *Tortrix viridana*. I say surprise, because I never found these pupæ otherwise than rolled up in a living oak leaf. Here then is the interesting part,—leaves were wanted for food, and as these larvæ are not adapted for progressive motion, a migration to other trees, in this case, was all but impracticable; they must therefore make the most of their present supply, and it became necessary to eat what, under other circumstances, would have formed a protection for the pupæ; and they sought this protection in the crannies of the bark, as more nearly resembling their usual retreat than any other that was attainable, for there was not a vestige of leaf left on the tree. And even this economy did not appear to have afforded them a sufficiency of food, for most of them were one-third less than the usual size, and their colour a more sickly green. Nature is in general too sure a guide for me to suppose that the foliage was all destroyed by this species, though they must have been very numerous; the probability is that other larvæ, and of larger size, had considerable share in the devastation: but, be that as it may, it was the expedient which instinct hit upon to supply a deficiency which they could not have anticipated, that excited my admiration; and it adds another link to the chain which connects instinct with reason.—*W. Turner, M.A.; Uppingham, November 8, 1848.*

Economy of Melanoleuca dodecea.—In May last I captured several of this rare and pretty ermine, at Darenth Wood, Kent, and as the history of them appears not to be known I venture to supply that deficiency. The moths make their appearance at the end of May, in woods, and lanes near woods, on *Lithospermum officinale*, and may be seen on the tops of that plant: time of day or weather appear seldom to make them quit their station: during heavy rains they only shift to some lower leaf, appearing again on the tops as the rain ceases. They are very sluggish in their habits; but on the least movement of the plant, in capturing them, they fall to the ground, where they remain for a long time in a torpid state. They keep in good condition four or five weeks. The caterpillar is bright yellow, with a broad white band down the back, and one down the belly; down the centre of each is a black line, but broken at each segment of the body; two rows of black patches along the sides, with a black dot between each; some fine white hairs scattered about the body: when young they spin a fine web on the under-side of the leaf, feeding on the soft part and leaving the upper part untouched: when they get nearly full fed they leave off spinning webs, but still keep feeding on the under-side of the leaf: like the moths, on the least movement of the plant, they fall to the ground: in caterpillar from five to six weeks in August and September: like the larvæ of the *Tortricidæ*, they travel backwards or forwards: when full fed they spin a strong white web among leaves and rubbish.—*H. J. Harding; 1, York Street, Church Street, Shoreditch, November, 1848.*

A FEW WORDS OF ADVICE
TO
COLLECTORS
OF
MICRO-LEPIDOPTERA.

BY
H. T. STANTON.

THE season for these insects is short, very short; hardly four months—for before the end of August they cease to abound; but during these three months and a half, how prolific is nature! every tree, every hedge, is inhabited by hundreds, or by thousands!! And owing to the numbers in which the species generally occur, it is quite probable for a collector in one day to take several hundred specimens—but then what a time is required to set these captures, there is the grand difficulty, the impediment to Micro-Lepidopterists—and it is on this subject I wish to say a few words.

In the first place, while A is groaning under the task of setting 500 Micro-Lepidoptera, the captures of the preceding day, B who lives in the next street is regretting he has nothing to do, not having been able to get out for two days—would it not be a manifest convenience to both parties for A to send a couple of hundred specimens that he does not want for himself to B—but stop, A's insects are all alive and in

boxes, to look at each before sending it to B, besides the risk of losing some of them, would be a great waste of time—would it not be advisable to send B 250 of his captures at hazard with the request that he will retain half he sets, the odd and single specimens to remain the property of A, by this arrangement A loses nothing or very little, and B gains considerably ; moreover A who has perhaps an opportunity of going out the next day is by this arrangement enabled to avail himself of it, instead of stopping at home to finish setting out his captures. But this plan is only available where the parties live near one another, and therefore appears at first sight confined to London collectors, but let not my provincial readers imagine that there is no help for them but setting all their captures themselves. In a tight tin vessel, Micro-Lepidoptera will travel safely (pinned on a damp cork) and be sufficiently moist to set on arrival at their destination. Now imagine C to take 100 of a new species he forwards in the way above described six or eight specimens to D, E, F, G, & H, and as I believe it is an axiom that a person sets an insect better for themselves than for another, D, E, F, G, & H thus become possessed of better set specimens than if C had set the whole 100. Another method of sending Micro-Lepidoptera to correspondents when met with in abundance, is as follows,—kill the insects and turn them into a small box in which is a little cotton wool. The insects of course reach the receiver stiff, but after being slightly relaxed they are readily pinned, and further process of relaxing renders them sufficiently pliable to set : I am speaking here from experience, having had *Argyromiges alnifoliella*, *Argyrotoza Rheediella*, and *Microsetia quadrella* sent me from Scotland in this way, and have set 30 *alnifoliella*, 43 *Rheediella*, and 18 *quadrella*. I am not proposing this as a substitute for setting the insects when fresh, but as an addition to it ; for I know by my own conduct in former years that I have often thrown insects away from inability to find time to set them, and independent of insects caught and afterwards thrown away, how many are not caught for want of time to set them.

K after a good day's capture sees swarming in hundreds an insect which he knows is much wanted by several of his friends, but he has already as many things in his pockets as will keep him employed more than the whole of the next day, so after catching a few for himself, he leaves the spot with the intention of sending his friends to get for themselves—accordingly two days afterwards L goes down to the precise spot and beats in vain ; not a specimen can he see : however in the course of his ramble he takes a number of other insects and falls in with a swarm of some other nice species which he knows K is badly off for, L catches a dozen and tells K that the insect occurs in such a spot if K would like to go for it. K thinks his friend might have brought him a few, as they were so plentiful, but as his conscience rather pricks him about his own previous behaviour he says nothing, but starts off in a day or two to secure for himself, but a change in the weather, a cold wind and a showery day have caused the moths to keep close, and he cannot find one of that which L saw so abundant but a few days previously.

Query. Would it not have been wiser for each to have caught the insects they saw ? Among Micro-Lepidoptera, there is no time like the present. One common fault of collectors is to neglect catching an insect on the idea nobody wants it, and how frequently do we hear such conversations as the following—

M. Oh ! what a beautiful insect that is, where *did* you get it ?

N. What ! *that* ; you don't mean to say you want it ?

M. But I do though, I have only a single bad specimen without a body.

N. Well ! I wish I had known last summer, I could have taken any quantity.

Now this disease is very inveterate and I fear almost incurable, but I have devised the following remedy.—

If I this year neglect to catch any common species from the idea that nobody wants it, or meeting with a scarce insect in abundance, neglect to take a sufficient quantity to supply all my correspondents (*who attend themselves to Micro-Lepidoptera*); such of my correspondents shall have full liberty during the ensuing winter to take two specimens out of my collection of such insects as aforesaid. It will be but natural that I should expect my correspondents who avail themselves of this offer will treat me upon *equal terms*.

To prevent any misunderstanding I may as well say that I am quite ready to set Micro-Lepidoptera for any one on condition of retaining half I set; the odd and single specimens to remain the property of the captor.

MOUNTSFIELD, LEWISHAM,

June 1st, 1848.

