

PROCEEDINGS

OF THE

DORSET NATURAL HISTORY AND

ANTIQUARIAN FIELD CLUB.

VOLUME VI.



Sherborne :

PRINTED AT THE "JOURNAL" OFFICES, SOUTH STREET.



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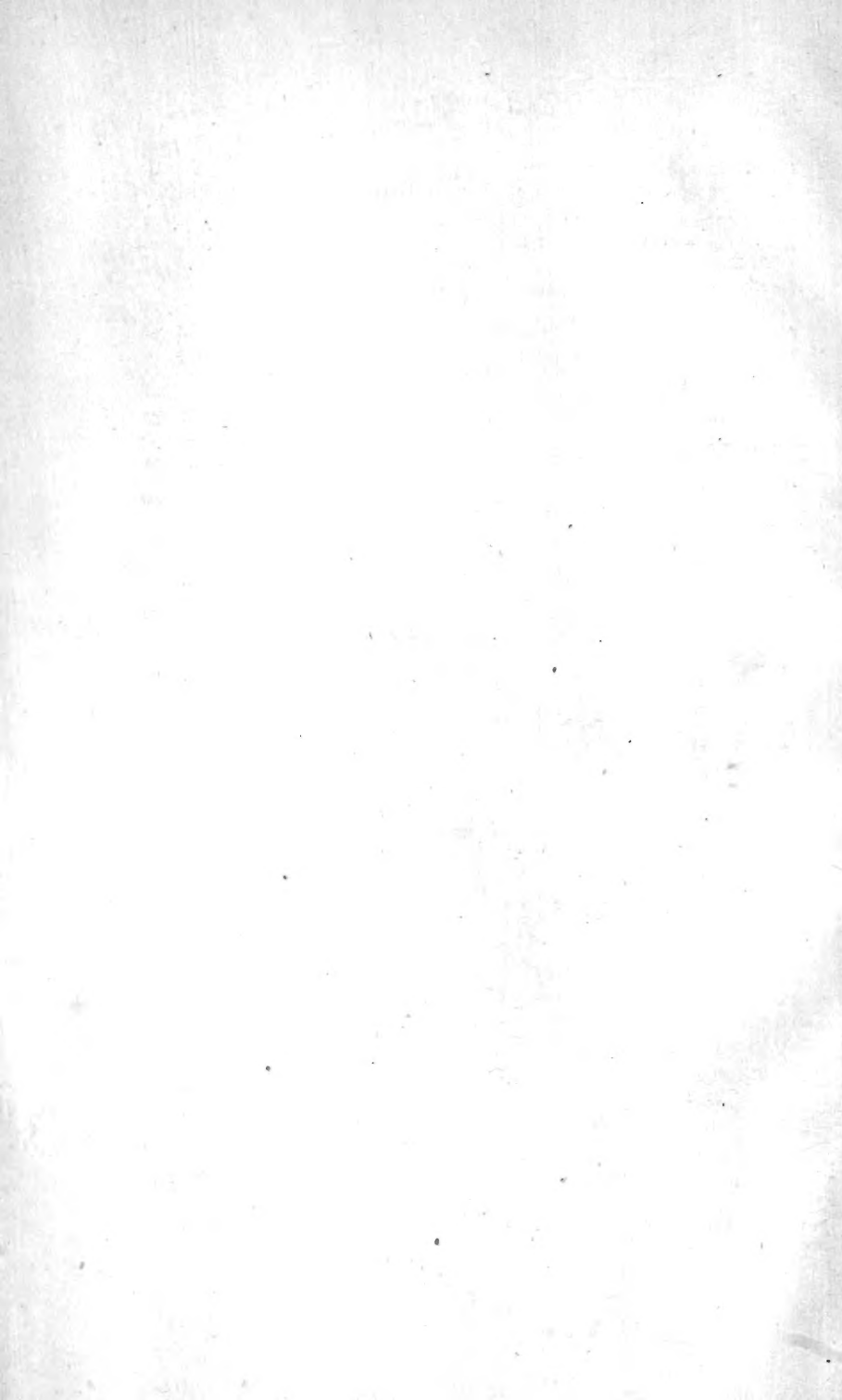
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Natural History & Antiquarian Field Club.

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Young, Rev. E. M. The King's School, Sherborne

. Members will oblige by informing the Secretary of any error or change in Address.



Notes of Meetings of Dorset Natural History and Antiquarian Field Club in 1884.

By Rev. O. P. CAMBRIDGE, M.A., C.M.Z.S., &c.

Owing to the illness, so soon followed by the lamentable death of our late valued friend and Secretary, Professor James Buckman, three meetings only were held in 1884.

FIRST MEETING, MAY 13TH, 1884.

Met at the Museum, Dorchester. Present—The Secretary, Treasurer, and about 35 other members, Mr. W. Colfox in the chair. The Treasurer (Rev. O. P. Cambridge) presented the financial report for the past year, June 1st, 1883, to May 13th, 1884.

On the current account the receipts (including a balance from last year of £2 6s. 5d.) amounted to £42 0s. 5d., and the payments to £30 3s. 6d., leaving a cash balance in hand of £11 16s. 11d. On a general statement, however, of the financial position of the Club it appeared that after balancing the total assets, £100 10s. 5d. (made up of the receipts mentioned above, plus subscriptions due to, but not including, the present

year—amounting to £53 10s.—due from 73 members) against the bills paid and those still outstanding, £108 1s. 5d., there was a balance against the Club of £7 11s. This deficit, together with the sum needed to defray the outstanding bills, it was confidently expected would be more than met very shortly by getting in arrears, and subscriptions for the present year.

The Secretary presented Vol. V. of the Proceedings of the Club, just published, and copies of which were subsequently distributed to all those members present who had paid their subscriptions.

The President, Secretary, and Treasurer were re-elected unanimously for the ensuing year.

Mr. Cunnington read a paper on “Ancient Dorchester,” illustrated by a plan of the Roman Durnovaria. Mr. Charles Rickman also read a paper on the fossils and bones found at Bryanstone during the excavation of a large Reservoir on Lord Portman’s estate. An adjournment was then made to Fordington Church, where a paper upon it was read by Mr. H. J. Moule, and from thence, after refreshments at Mr. Alfred Pope’s, to Malbury Rings, or the Amphitheatre, which was explained in a paper read by Mr. A. Pope, a discussion subsequently taking place on some points, between Mr. Cunnington and Professor Buckman. The party then returned to inspect the Museum, and thence to dinner at the King’s Arms Hotel, after which the Secretary (in the absence of the Rev. W. Barnes) presented a copy of Mr. Barnes’s paper on “The Invasion of the south-west of Britain by Vespasian,” but declined to read it, not being up in the Welsh or British tongues. Mr. Thomas Hardy then read a short paper on some interesting Roman and other remains lately found by himself during the excavation of a building site in Fordington Field. The Secretary (in the absence of the Author) gave the substance of a paper intended to have been read by Mr. Edwin Lees, the President of the Worcester Naturalists’ Club, “On a new

form of fungus attacking yew trees." The Rev. C. H. Mayo proposed that the Club should undertake, through its members, the copying of inscriptions in the churches and graveyards in the county, as a means of preserving many interesting and important points of antiquarian history. This was seconded by Mr. W. Penney, and after some discussion it was moved by the Rev. O. P. Cambridge that Mr. Mayo should undertake the organising of this work, and report to a future meeting. Mr. T. B. Groves having seconded this it was assented to by Mr. Mayo and carried unanimously.

Mr. Rickman called attention to the proposed sale of the late Mr. Shipp's valuable collection of fossils, suggesting that it should be purchased by public subscription and presented to the County Museum. The desirability of this was readily assented to, and Mr. Rickman undertook to use endeavours to carry it out.

The following were elected Members of the Club :—

Bankes, Eustace Ralph, Esq.	Corfe Castle Rectory, Wareham.
Brook, Miss	.. .. Dorchester.
Child, Dr. C.	.. .. 2, Royal Terrace, Weymouth.
Colfox, Miss Mary	.. .. Bridport.
Durden, Rev. H.	.. .. Dorchester.
Farquharson, H. R., Esq.	.. .. Tarrant Gunville.
Grove, Walter, Esq.	.. .. Ferne House, Salisbury.
Hogg, B. A., Esq.	.. .. Dorchester.
Leonard, Rev. A.	.. .. Fordington, Dorchester.
Mansell-Pleydell, Capt.	.. .. Whatcombe.
Murray, Rev. Richard P.	.. .. Shapwick Vicarage, Blandford.
Randall, Rev. W.	.. .. East Lulworth, Vicarage.
Ward, Rev. J. H.	.. .. Gussage St. Michael Cranborne.

SECOND MEETING, JUNE 18TH, 1884.

Met at Christchurch ; present the President, Secretary, Treasurer, and about 50 other members and friends. The Priory Church was visited and examined, explanations being given

by Professor Paley. A visit was also paid to the "Norman House," upon which remarks and explanations were made by Professor Paley and others. Mr. Edward Hart's fine collection of British Birds was also visited and deservedly admired. From Christchurch the party went to Bournemouth to luncheon by invitation of the Rev. J. H. West, at Ascham House, after which a very interesting address was given by Mr. West, on the Geology of the Bournemouth Coast, assisted by some excellent diagrams and a fine collection of fossils. Mr. W. Penney (of Poole), differed from Mr. West's explanation of the silting up of the entrance to Poole Harbour. Thanks were proposed by the Secretary and unanimously accorded to Mr. West for his address and hospitality to the members of the Club on this occasion. A Paper on new and rare British Spiders, with remarks on the formation of new species, illustrated by drawings, was then read by the Rev. O. P. Cambridge; and a "Note on the occurrence of the Dotterel" (*Charadrius morinellus*) at Bradford Abbas, was read by Professor Buckman who supposed this to be its first record in Dorsetshire, but Mr. Mansel-Pleydell mentioned at least two or three other occurrences in the County within his own knowledge, though (excepting one) many years ago. Other papers mentioned in the day's programme were deferred from want of time, and a very enjoyable day's work closed.

The following were elected members of the Club:—

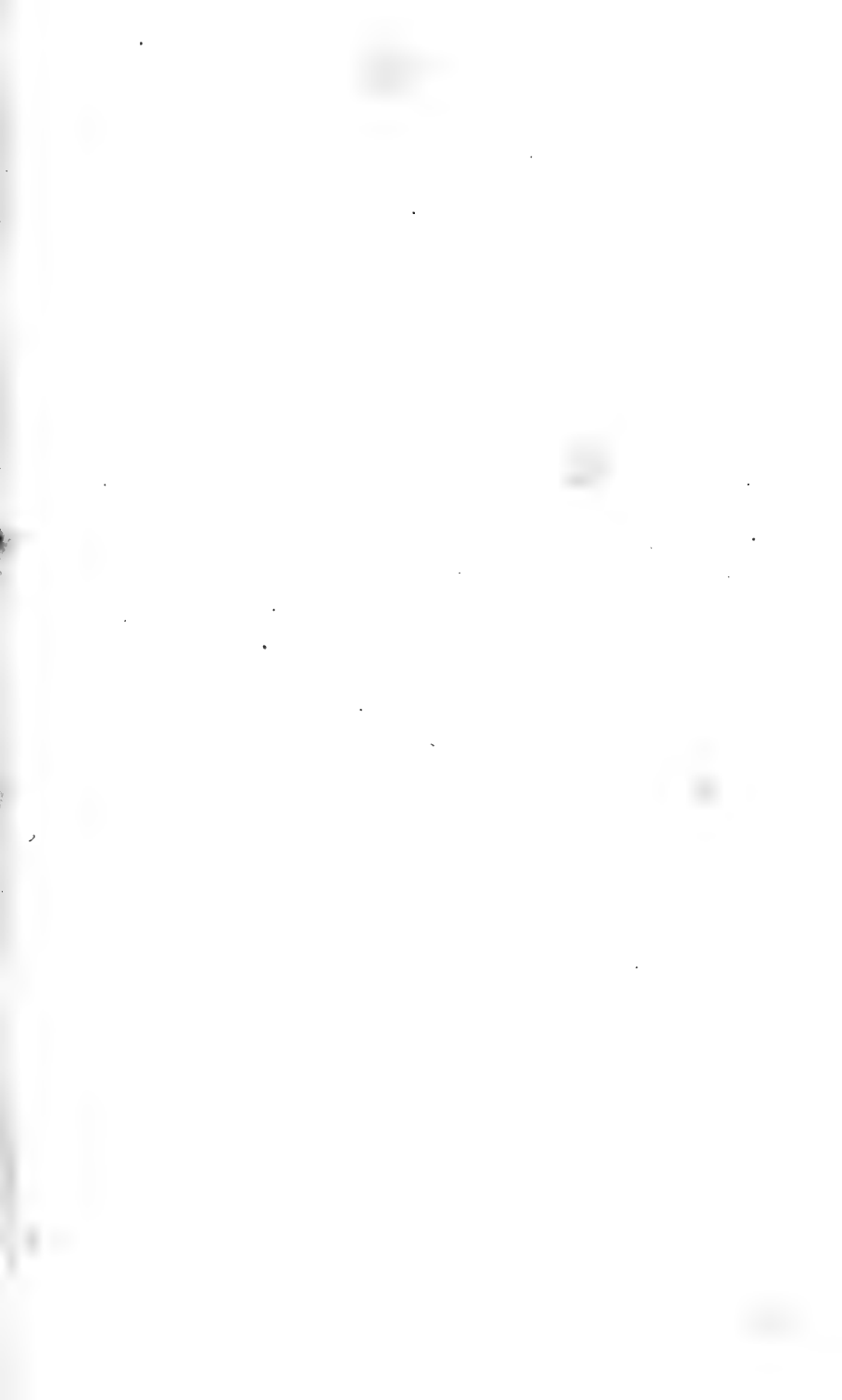
Cambridge, Col. Jocelyn	
Pickard	Bloxworth, Wareham.
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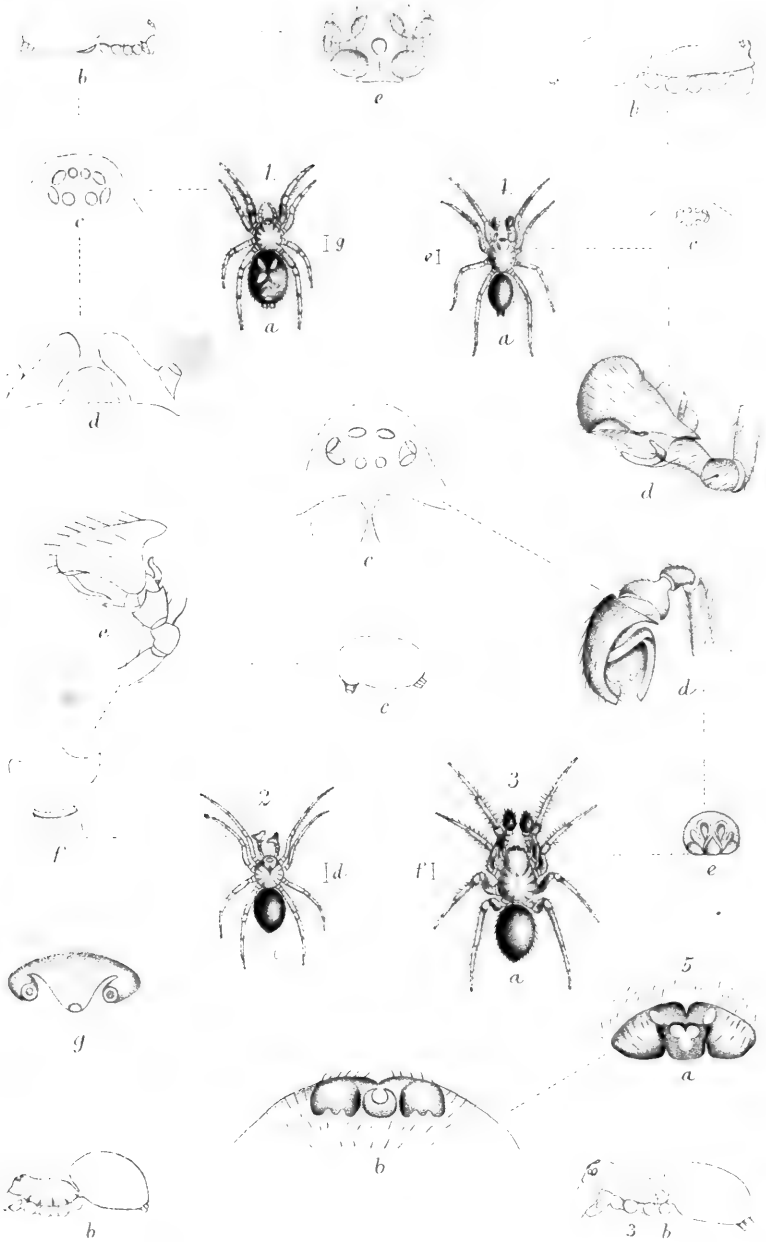
THIRD MEETING, AUGUST 19TH, 1834.

The President and Secretary with about 12 other members met at Weymouth, at Cook's Restaurant, the short attendance being due to a most tempestuous morning. Mr. T. B. Grove's paper on the Chesil Beach was postponed in the absence of the Author at the British Association Meeting, at Montreal, Canada. The President therefore read a paper on the Phenomena of Portland and its neighbourhood—including the leading features of the District. The weather clearing up the party then proceeded to inspect a Barrow newly opened by Mr. Cunnington, at Upwey, on the property of Mr. Goodden; three or four skeletons and two urns of great interest being brought to light. A paper was read here by Mr. Cunnington on his excavations at Maiden Castle, illustrated by drawings executed by Miss Cunnington. Among the objects then recorded was a Bronze of a Knight, curiously ornamented. On the return to Weymouth, a paper by Dr. W. Smart, on the "Bockley or Bokerly Dyke," was accepted for publication in the Club's Proceedings; as also was another by the Rev. O. P. Cambridge, on "Megalithic Remains at Poxwell, Dorset," illustrated by a water-colour sketch by Mr. F. O. P. Cambridge. The Secretary then read a paper on "*Sphærella Taxi*," a new fungus attacking Yew Trees, and this brought the day's proceedings to a close.

An Obituary notice, and portrait of our lamented Secretary, PROFESSOR BUCKMAN (whose unexpected decease we have to deplore in the midst of his editorial work on the present volume) will appear in vol. vii.—O.P.C.









On New & Rare British Spiders,

With some remarks on the formation of New Species.

PLATE I.

By the Rev. O. P. CAMBRIDGE, M.A.



SINCE my last communication, now just two years ago (Proc. Dors. N.H. & A.F. Club, vol iv., p. 147), but few additions have been made either to our Dorset or to the British List of Spiders. This is partly owing to my own leisure for field work having been since then much shortened, and my district having become pretty thoroughly worked out; but chiefly, I think, it is due to the study and collecting of the *Araneidea* being still at a comparatively low ebb among our British Naturalists. I have, however, now to record and describe two species, which I believe to be new to science. These belong to the genus *Neriene*, Bl.; one was found by myself at Bloxworth, the other by my nephew (F. O. P. Cambridge) at Mawnan, in Cornwall. I have also to record the occurrence, for the first time as British, of a Salticid Spider, *Dendryphantes hastatus*, Clk. This fine addition to the British fauna was kindly sent to me from the neighbourhood of Norwich by Mr. James Edwards, in 1882. It was found by him on a *fir tree*, and as this situation appears to be that in which it is usually found in Germany (where it is an abundant spider), I should confidently expect to find it in the district in which we are now met, where waste ground and the Scotch fir are so abundant.

Neriene decora, Cambr., and *Drepanodus obscurus*, Menge, are now also recorded for the first time as British, though whether the latter is really distinct from *Neriene albipunctata*, Cambr., is at present somewhat doubtful. In the list which follows will also be found a record of the occurrence, for the most part in my own immediate neighbourhood, of various other rare, little known, or remarkable spiders, and it is with reference to two of these, *Neriene atra*, Bl., and *Neriene errans*, Bl., that I have ventured to make some remarks on the formation, or more properly the evolution, of new species (vide postea, p. 4. and p. 9.).

ORDER ARANEIDEA.

FAM. DRASSIDÆ.

GENUS, PROTHESIMA, *L. Koch.*

PROTHESIMA PEDESTRIS, *C. L. Koch* (*Cambr. Spid. Dorset*, p. 15.)

On the 13th of June, 1883, I found an adult male of this distinctly coloured species on the pathway between Berewood and Woodbury Hill. This is its first occurrence in this district.

PROTHESIMA LATREILLII, *C. L. Koch* (*Cambr. Spid. Dors.* p. 421).

An adult male of this rare species occurred under an old piece of turf on Bloxworth Heath on the 2nd June, 1884.

GENUS, DRASSUS *Walck.*

DRASSUS SILVESTRIS, Bl., (*Cambr. Spid. Dors.* p. 460).

„ *nuscatus*, Westr., (*Cambr. Spid. Dors.*, p. 423).

Among some spiders received from Mr. Blackwall's collection, since his decease, is the type-specimen of *Drassus silvestris*, which on comparison proves beyond a doubt its identity with *D. infuscatus*, Westr. This latter name therefore becomes a synonym.

DRASSUS BRACCATUS, *L. Koch.*

„ *bulbifer*, *Cambr. Spid. Dors.*, p. 18, and 570).

An immature female of this distinctly marked species was sent to me in 1883 by Dr. Horner, of Tonbridge, by whom it was found at Eastbourne, Sussex.

GENUS, *CLUBIONA Latr.*

CLUBIONA CÆRULESCENS, *L. Koch, Cambr., Spid. Dors.*, p. 29, and
Proc., Dors. N.H. and A.F. Club, iv., p. 151.

On the 26th May, 1884, I found an adult male of this rare and remarkable spider among moss in Berewood: those before found were in the adult state in *September*.

FAM. AGELENIDÆ.

GENUS, *CRYPHOECA, Thorell.*

CRYPHOECA MOERENS, (*Cambr., Spid. Dors.*, p. 59 and 571).

Pl. 1, fig. 1.

An immature female (the third specimen only as yet known), occurred among moss in Berewood on the 17th of April, 1883. As no figure as ever yet been published of this Spider, I have included it in the plate which accompanies the present record of its occurrence.

GENUS, *DREPANODUS Menge.*

(*NERIENE*, Bl.,—*Cambr.*, ad partem.)

DREPANODUS OBSCURUS, *Menge?*

Adult females of what I believe to be this species were found by F. O. P. Cambridge under stones and among seaweed on the shore at Polperro, Cornwall, in June, 1883. Its main difference from *D. (Neriene) albipunctatus, Cambr.* (*Spid. Dors.*, p. 122), consists in the absence of white spots or markings on the upper side of the abdomen.

GENUS NERIENE, Bl.

NERIENE PROMISCUA, *Cambr.* (Spid. Dors., p. 482.)

Two males were found by F. O. P. Cambridge, among seaweed on the shore at highwater mark, at Polperro, Cornwall, in June, 1883.

NERIENE ATRA, Bl. (*Cambr.*, Spid. Dors., p. 106.)

In the summer of 1883, Mr. F. M. Campbell sent to me from Hoddesdon an adult male spider, well developed and fully coloured, evidently nearly allied to *Neriene atra*, Bl., but differing from it in wanting the full characteristic development of the armature of the cephalothorax and falces, as well as in the length and proportion of the joints and apophyses of the palpi. I subsequently met with two other examples in the neighbourhood of Bloxworth, showing a similar departure from these typical characters.

Under ordinary circumstances the differences above noted would have been legitimately considered sufficient for the characterization of these examples as a new species, but having submitted one of them to Mons. Eugène Simon (one of the most experienced of living araneologists), he agrees with me that it is only an abnormal, or not fully developed (though completely developed so far as its own individuality is considered), form of *Neriene atra*, Bl.

I would now suggest that in very abundant species (like *Neriene atra*) the occasional occurrence of undeveloped individuals points to the probability of a new species in process of formation. Whatever the cause or causes may be of the present production, here and there, of such undeveloped examples, those causes may be well supposed to continue, and very possibly to become intensified; the law of inheritance would then come in and operate in the same direction, and thus a more constant succession of such forms would be produced. For the students therefore of the future we may anticipate that there would be a

group of individuals sufficiently distinct to be characterised by stated limits of form, structure, and probably colour, and thus readily separable from that type of which at present we consider the examples under consideration to be simply abnormal forms; in other words a new species would have been produced, and its discoverer would be justified in so characterizing and describing it. The formation of new species is a subject of great interest as well as importance to Zoologists and Botanists. If the origin of species by evolution, whether practically carried out by natural selection or any other process (or as is most probable by that and other methods) be a true position, species are undoubtedly still in course of formation. The groups of individuals in which we should expect to find the process going on are those called dominant ones; *i. e.* those which exceed others in the abundance, in the wide distribution and in the liability to variation, of their individual members, as also in their adaptability to very varied circumstances and surroundings. Hence, in dealing with such groups it is of great importance to obtain the longest possible series of individuals of both sexes from every kind of locality; to form, in fact, a collection on exactly the opposite principle to that on which some collectors of insects (notably, *Lepidoptera*.) used to form their collections, that is by discarding every specimen of an acknowledged species which presented the least variation from the normal type, on the score that such specimens made the goodly rows in the cabinet look uneven and unsightly. Among spiders one of these dominant groups is certainly that which comprises *Neriene atra*, Bl., *N. longipalpis*, Sund., and some others, more or less closely allied, forming in fact the restricted genus, *Erigone* (Sav.). Mr. J. H. Emerton, an American Arachnologist, sent to me some years ago from North America a large number of spiders of this group indiscriminately collected and all mixed together. After carefully examining every individual I came to the conclusion that there were among them several distinct forms, which I shortly afterwards described and characterised as distinct species; but still a number of examples

remained which I was quite unable to refer satisfactorily to either of these species, nor yet could I conscientiously characterise another species among them. More recently, Mr. Emerton, after careful examination of a much more extensive series of this group from the same locality, has come to the conclusion that it is impossible to separate them into satisfactory species, owing to the innumerable grades of variation in form and structure existing among them. He has consequently included the whole lot under one specific name, referring them all to *Neriene longipalpis*, Sund. (Vide "New England Theridiidæ," by J. H. Emerton, Trans Conn: Acad. vi., p. 59, 1882.) Evidently the formation of, probably, several species is actively going on in this group in North America. I believe the same result is in preparation in this group here in Europe, and indeed in England, though perhaps not so rapidly. What the eventual forms may be, which will at length become tolerably stable, it is impossible to conjecture. Another instance of this process being at work is I conceive furnished in the cases of *Linyphia errans*, Bl., *L. oblonga*, Cambr., and *L. incerta* id.

NERIENE AFFINIS, Bl. (*Cambr.*, Spid. Dors., p. 114).

Adults of both sexes of this rare and distinct spider have been lately found in a marshy spot near Hoddesdon, in spring and summer, by Mr. F. M. Campbell.

NERIENE CORNIGERA, Bl. (*Cambr.*, Spid. Dors., p. 430).

An adult male was found by my son, Arthur Wallace, among grass near the iron fence of the lawn at Bloxworth Rectory, on the 12th of March, 1883. This capture is interesting as being in a locality so different from that in which the only other known (British) examples (four in number) have occurred. One of these, the type specimen, was found on a mountain in North Wales; the other three in a swamp near Bloxworth.

NERIENE REPROBA, (*Cambr. Spid. Dors.*, p. 431). Pl. 1. fig. 5.

This spider has again been found (both sexes) under seaweed washed up on the sea-shore, near Whitenose, Dorsetshire, at the end of July, and in September. The female has not before been recorded. In general characters it differs but little from the male, but the eyes of the hinder row appear to be equally separated instead of the central pair being nearest to each other. The form of the genital aperture is characteristic, but requires an accurate magnified figure to explain the difference from its near ally *Neriene inerrans*, sp. n., described below.

NERIENE CLARKII *Cambr.* (*Spid. Dors.*, p. 119).

Three adult males were swept off heather and rushes in a swampy situation near Bloxworth, on the 28th of May, 1884. Although a widely dispersed species it seems as yet to be of rare occurrence. I have not yet detected the female.

NERIENE INERRANS, *sp. n.* Pl. 1, fig. 3.

For a description of this very distinct species, which is allied to the preceding (*N. reprobata*, *Cambr.*) vide postea. p. 11.

NERIENE DECORA, *Cambr.* (*Spid. Dors.* p. 492). Pl. 1. fig. 4.

An adult male of this spider (which is now recorded for the first in Dorsetshire), occurred among herbage at Bloxworth in the summer of 1883.

NERIENE SUBTILIS, *Cambr.* (*Spid. Dors.*, p. 131).

„ *anomala*, *Cambr.* (*Spid. Dors.* p. 133).

I had long suspected that *Neriene anomala* (*Cambr.*), a female spider remarkable for the unusual tumidity of the digital joints of the palpi, was probably the female of *N. subtilis*, *Cambr.*, but it was only during the season of 1882 that I obtained good evidence of the identity of the two.

NERIENE FESTINANS, *sp. n.* Pl. 1. fig. 2.

For a description of this spider, which is nearly allied to the foregoing (*N. subtilis*, *Cambr.*), vide postea. p. 13.

NERIENE NIGRICEPS, *Cambr.* (Spid. Dors., p. 128).

An example of this species was found at Bloxworth among heather, on June 1st, 1883, and another in June, 1884. Three have thus been found up to the present time. The last two examples were even more brightly and distinctly marked than the type. The caput and falces are sooty black; the sternum very bright orange-red, the palpi are browner than the legs; the radial joints of the palpi are rather clavate, increasing in stoutness from the posterior to the anterior extremity. Abdomen dull drab yellow-brownish; height of the clypeus equal to half that of the facial space. The thoracic indentations are indicated by traces of black converging lines.

GENUS: WALCKENAERA, *Bl.*

WALCKENAERA NEMORALIS, *Bl.* (*Cambr.* Spid. Dors., p. 167).

This very minute but distinct and remarkable little spider was rather abundant on iron railings, posts, and other situations at Bloxworth Rectory, in the Spring and early Summer of 1883. Up to that time it had always been a rare spider in this district.

WALCKENAERA LUDICRA, *Cambr.* (Spid. Dors., p. 168).

„ *penultima*, *Cambr.* Ann and Mag. N. H
January, 1882, p. 7. Pl. 1: fig. 4.

After careful examination of the type specimen of *W. penultima*, *Cambr.*, Mons. Simon considers it to be an undeveloped example of *W. ludicra*, *Cambr.*, Agreeing with M. Simon that this is probably the case, I give it here as a synonym of that species.

WALCKENAERA SCABROSA, *Cambr.* (Spid. Dors., p. 143).

An adult male of this, which is one of our rarest species, was swept off grass and other herbage at Bloxworth, on the 27th of May, 1884. I have also received it from Hoddesdon, from Mr. F. M. Campbell.

WALCKENAERA SUBITANEA, *Cambr.* (Spid. Dors., p. p 144 and 445.)

This minute spider has occurred again twice since my last notice of it, each time in a fuel house, in May and October, 1882.

GENUS : LINYPHIA, *Latr.*LINYPHIA PRUDENS, *Cambr.* (Spid. Dors., p. 456).

An adult male of this species (the second example only as yet met with in this district.) was found among moss in a wood at Bloxworth, in the autumn of 1882.

LINYPHIA ERRANS, *Bl.* (*Cambr.*, Spid. Dors., p. 204).

„ *oblonga*, (*Cambr.*, p. 204).

„ *incerta*, (*Cambr.*, p. 205).

It seems difficult to come to any other conclusion than that the three spiders above named are varieties of the first noted (*L. errans*, *Bl.*). Mr. F. M. Campbell has found at Hoddesdon, in Hertfordshire, numerous examples, both males and females, in which the distinctive characters of the two latter species are so interchanged with those of *L. errans* that it is impossible to assign the individual in question with certainty to either of the three species. It is curious that as in regard to the species just now spoken of (*Neriene atra*, *Bl.*), so here again the varying characters are not simply those accounted in most natural groups to be of specific value (such as colours and markings, in which much variability is often found and considered to be quite consistent with specific identity), but *structural variations*, such as in many groups would rank as of generic value. Here, however, in the case of *Linyphia errans* and the other two species mentioned, the variation is found not in the palpi, nor in any thoracic armature, but in the size and position (both absolute and relative) of the eyes. It appears to me that as noticed above in reference to some abnor-

mal forms of *Neriene atra*, Bl., here^d we may probably have several species in process of formation. (For Mr. Campbell's notes on these spiders, see Trans. Hertfordshire Nat. His. Society, p. p. 263, 264.)

Lynyphia errans was described by Mr. Blackwall as a *Neriene*, and was subsequently removed to the genus *Linyphia* by myself in consequence of its legs being armed with distinct, though slender, spines. There is, however, no doubt but that it should be included, with many others, in the genus *Microneta* Menge. In accordance with the evidence furnished by the series of examples found by Mr. Campbell the specific names of *oblonga*, and *incerta* become synonyms of *Linyphia errans*, Blackw.

FAM. EPEIRIDÆ.

GENUS SINGA, *C. L. Koch.*

SINGA ALBOVITTATA *Westr.* (*Cambr.*, Spid. Dors., p. 252.)

An adult male was found on heather, Bloxworth, on the 2nd of June, 1882, and another on the 10th of May, 1884. This pretty spider is not uncommon in the immature state in early autumn, but I have rarely found it adult.

FAM. THOMISIDÆ.

GENUS OXYPTILA, *Sim.*

OXYPTILA BLACKWALLII, *Sim.* (*Cambr.* Spid. Dors., p. 318).

Adult females of this remarkable spider were found under stones at Polperro, Cornwall, by F. O. P. Cambridge, in June, 1883. It may easily be known by the stout clavate form of the hairs with which the cephalothorax and abdomen are furnished.

OXYPTILA SANCTUARIA, *Cambr.* (Spid. Dors., p. 319).

Two adult males were sent to me in 1883 by Dr. Horner, of Tonbridge, by whom they were found at Eastbourne, Sussex.

OXYPTILA SIMPLEX, *Cambr.* (Spid. Dors., p. 324).

After an interval of several years, during which I have not seen a single specimen, I have to-day (June 13, 1884) found an exceedingly well marked adult male on my lawn, at present the only known British locality for it.

FAM. SALTICIDÆ.

GENUS SALTICUS, *Latr.* (ad partem).

SALTICUS FORMICARIUS, *Walck.* (*Cambr. Spid. Dors.*, p. 568).

Dr. Horner, of Tonbridge, kindly sent to me in a living state an adult female of this very rare spider, found by himself in September, 1882, secreted in a hollow bramble stem, at Eastbourne, Sussex.

GENUS DENDRYPHANTES, *C. L. Koch.*

DENDRYPHANTES HASTATUS, *C. L. Koch.*

„ *Araneus hastatus* Clerck, *Sv. Spindl.* p. 115. pl.
5. Tab. 11.

An adult male of this species was forwarded to me among many other spiders from the neighbourhood of Norwich, by Mr. James Edwards, by whom it was found on a fir tree. This is its first record as a British spider.

DESCRIPTIONS OF NEW SPECIES.

FAM. THERIDIIDÆ.

GENUS NERIENE, *Bl.*

NERIENE INERRANS, *sp. n.* Pl. 1. fig. 3.

Adult male, length 1 line.

The *cephalo-thorax* is of the ordinary oval form; the profile from the anterior eyes to the hinder margin forms a nearly even curve, the occiput being slightly gibbous; and the height of the clypeus (which is nearly vertical to the plane of the *cephalo-thorax*) is equal to half that of the facial space. The normal indentations are not very strongly marked, being chiefly indi-

cated by blackish converging stripes, the ground colour being dark yellowish brown. The lateral marginal indentations at the caput are very slight.

The *eyes* are of moderate size, in two transverse curved rows, curved away from each other, *i.e.*, the curve of the anterior row is directed forward, while that of the posterior row is directed backwards; those of the posterior row are separated from each other by equal intervals of an eye's diameter; the anterior row is shortest, and its two central eyes (the smallest and darkest of the eight) are nearly, if not quite, contiguous to each other. The four central eyes form a square, whose anterior side is shortest, and those of each lateral pair are contiguous to each other, and placed obliquely on a black tubercle.

The *legs* are rather slender, moderately long, 4, 1, 2, 3, of a reddish brown colour, the genual joints paler, furnished with hairs, bristles, one or two of which, on the femora and tibiae of the 3rd and 4th pairs, may be called slender spines.

The *falces* are moderate in length and strength, nearly vertical, slightly divergent at their extremity, towards which, on the upper side at the inner margin, is a distinct but not very strong tooth.

The *maxillæ* are short and strong, obliquely terminated at the extremity on the outer side, and converging towards the labium, which is small and of a semicircular form.

Sternum large and heart-shaped. The colour of the falces, maxillæ, labium and sternum is dark yellow-brown tinged slightly with reddish, the sternum being darkest.

The *palpi* are short, particularly the cubital joint; the radial joint is much stronger than the cubital, of a rounded and spreading form, being, in fact somewhat bell-shaped, slightly and obtusely pointed in front at the middle of the anterior extremity. The digital joint is oval, of fair size, and a little prominent at the base on the outer side. The palpal organs are well developed, complex, one or two rather prominent processes (one large and

curved), project underneath at their extremity; and at their base on the outer side is a curved obtuse and tolerably conspicuous one; a corresponding process is found in numerous species of *Neriene* and *Linyphia* and I have always considered it to be attached to the *digital* joint in connection, more or less close, with the palpal organs, but Mr. Emerton considers it to be attached beneath the *radial* joint; its form is always specific, and often affords one of the best distinguishing specific characters—nothing but a very accurate magnified drawing could satisfactorily explain the characteristic distinctions in the form of this process in different species. The palpi are similar to the legs in colour, excepting the radial and digital joints, which are strongly tinged with black-brown.

The *abdomen* is oval, black, glossy, thinly clothed with fine hairs, and (in the male) projects scarcely at all over the base of the cephalo-thorax. The female only differs from the male in being slightly larger and the legs shorter; the impress, however, of the thoracic indentation appears stronger, so that there is a somewhat more notch-like impression when looked at in profile; the form of the genital aperture is characteristic, but needs the figure to explain it. The *falces* are straight and want the tooth in front.

Three males and two females were found by F. O. P. Cambridge, under stones and seaweed at Mawnan, near Falmouth, in Cornwall. This spider appears to be nearly allied to *Neriene reprobata*, Cambr.; but the male differs in the structure of the palpi, and the female in that of the genital aperture.

NERIENE FESTINANS, *sp. n.* Pl. 1. fig. 2.

Adult male, length one-tenth of an inch.

The *cephalo-thorax*, looked at directly from above, is very nearly round, but the clypeus projects at the lower margin in a blunt pointed form; looked at in profile the caput is not raised above the thoracic level, but the profile line shews a distinct shallow notch or depression between the caput and thorax. It is of a dark yellow-brownish hue with a margin, converging lines and

a patch at the junction of the caput and thorax of deep black-brown. The height of the clypeus considerably exceeds half that of the facial space.

Eyes of moderate size and almost equal, placed on a rather compact transverse-oval area; those of the posterior row are equally separated from each other, the intervals being very small, no more than half an eye's diameter.

Legs moderately long, but not greatly different in length, slender, of a bright orange-red colour, furnished with hairs and a very few slender erect bristles; relative length, 4, 1, 2, 3.

Palpi rather short, cubital and radial joints about equal in length, the latter is strongest, the former being a little gibbous in front, where there is a prominent, slender, sinuous black bristle; their colour is dark, especially the digital joint, which is nearly black; this joint has its posterior extremity prolonged into an obtusely-conical form flattened or rather concave on the outer side; looked at from the outer side rather in front, this prolongation has a longish slightly curved hornlike appearance. The palpal organs are complex and well developed, but tolerably compact.

Falces short, perpendicular, weak, and similar in colour to the cephalo-thorax.

Maxillæ strong and straight, strongly inclined to the labium, and paler in colour, than the falces.

Labium small, short and in the form of a segment of a circle. *Abdomen* short-oval considerably convex above, glossy black, sparingly clothed with short hairs, and scarcely projecting over the base of the cephalothorax.

Sternum heart-shaped, shining, very convex above and similar in colour to the cephalo-thorax.

The female is a little larger than the male and slightly less deep in colouring; the genital process is large and projects nearly perpendicularly from the surface of the abdomen—the palpi are black and the digital joint is a little incrassated.

This spider is allied to *Neriene subtilis* Cambr., *N. innotabilis* id, and *N. conigera* id. from all these however it differs in several well marked characters. From *N. subtilis* it may be distinguished by its much richer colouring, the far greater development of the conical process at the base of the digital joint of the palpus, and (in the female) by the much less incrassated digital joint, and the different form of the genital process and aperture. From *N. innotabilis* the equally separated eyes of the posterior row will at once distinguish it, as will also its much richer colouring. The less developed digital process of the male, and the less round form of the cephalo-thorax of *N. innotabilis* are also good distinguishing characters, as well as the slenderer digital joint of the female palpus. From *N. conigera*, to which it is closely allied, it may be easily distinguished by its much larger size, brighter colouring, and (in the female) by a different form of the genital process; in all these species, however, this process is large, prominent, and very similar in general appearance. In the form of the palpi *N. festinans* bears very close resemblance to *N. conigera*.

Two males and a female were found among the decayed débris of a faggot rick at Bloxworth Rectory, on the 16th of June, 1883.

LIST OF SPECIES ABOVE-NOTED AND DESCRIBED.

FAM. DRASSIDÆ.

- Prothesima pedestris*, C. L. Koch (p. 2).
 ,, *Latreillii*, L. Koch (p. 2).
Drassus silvestris, Bl. (p. 2).
 ,, *braccatus*, L. Koch (p. 3).
Clubiona coeruleascens, L. Koch (p. 3).

FAM. AGELENIDÆ.

- Cryphoeca moerens*, Cambr. (p. 3. pl. 1, fig. 1).

FAM. THERIDIIDÆ.

<i>Drepanodus obscurus</i> , Menge	(p. 3).
<i>Neriene promiscua</i> , Cambr.	(p. 3).
„ <i>atra</i> , Bl.	(p. 4).
„ <i>affinis</i> , Bl.	(p. 6).
„ <i>cornigera</i> , Bl.	(p. 6).
„ <i>reproba</i> , Cambr.	(p. 7, pl. 1, fig. 5).
„ <i>Clarkii</i> , Cambr.	(p. 7).
„ <i>inerrans</i> , sp. n.	(p. 7 and 11, pl. 1, fig. 3).
„ <i>decora</i> , Cambr.	(p. 7, pl. 1, fig. 4).
„ <i>subtilis</i> , Cambr.	(p. 7).
„ <i>festinans</i> , sp. n.	(p. 7, and 13. pl. 1, fig. 2).
„ <i>nigriceps</i> , Cambr.	(p. 8).
<i>Walckenaera nemoralis</i> , Bl.	(p. 8).
„ <i>ludicra</i> , Cambr.	(p. 8).
„ <i>scabrosa</i> , Cambr.	(p. 8).
„ <i>subitanea</i> , Cambr.	(p. 9).
<i>Linyphia prudens</i> , Cambr.	(p. 9).
„ <i>errans</i> , Bl.	(p. 9).

FAM. EPEIRIDÆ.

<i>Singa alborittata</i> , Westr.	(p. 10).
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FAM. THOMISIDÆ.

<i>Oxyptila Blackwallii</i> , Sim.	(p. 10).
„ <i>sanctuararia</i> , Cambr.	(p. 10).
„ <i>simplex</i> , Cambr.	(p. 11).

FAM. SALTICIDÆ.

<i>Salticus formicarius</i> , Walck.	(p. 11).
<i>Dendryphantes hastatus</i> , Clerck.	(p. 11).

DESCRIPTION OF PLATE I.

- FIG. 1. *Cryphoeca moerens*, Cambr.; *a*, adult female, magnified; *b*, profile without legs; *c*, eyes from above and behind; *d*, maxillæ and labium; *e*, genital aperture; *g*, natural length of spider.
2. *Neriene festinans*, Cambr., sp. n.; *a*, adult male, magnified; *b*, profile without legs; *c*, profile of abdomen (female); *e*, right palpus of male, from inner side, above and behind; *f*, portion of left palpus from above and behind; *d*, natural length of male; *g*, genital aperture (female).
3. *Neriene inerrans*, Cambr., sp. n.; *a*, adult male, magnified; *b*, profile without legs; *c*, caput from in front, showing the eyes; *d*, right palpus from inner side; *e*, genital aperture (female); *f*, natural length of spider.
4. *Neriene decora*, Cambr.; *a*, adult male, magnified; *b*, profile without legs; *c*, eyes, and outline of lower part of clypeus, from above and behind; *d*, left palpus, looking on the inner side sideways; *e*, natural length of spider.
5. *Neriene reprobata*, Cambr.; *a*, genital aperture (female); *b*, ditto viewed more horizontally.

ERRATA AND CORRIGENDA.

- PAGE 2.—line 2 from top, insert after *recorded*, a comma, and the words “the latter.”
- „ Line 3 „ for “the latter”, read “it.”
- „ Line 6 from bottom, for “*nuscatus*,” read “*infuscatus*.”
- PAGE 10.—Line 5 from top, for *Lynyphia*, read *Linyphia*,
- PAGE 56.—Line 11 from bottom, for *forward*, read *formed*.
- PAGE 71.—Line 3 from top, for *newly*, read *nearly*.
- PAGE 73.—Line 4 from bottom, for *wookwork*, read *woodwork*.
- „ Line 14 from top, for *lighest* read *lightest*.

FAM. THERIDIIDÆ.

<i>Drepanodus obscurus</i> , Menge	(p. 3).
<i>Neriens promiscua</i> , Cambr.	(p. 3).
„ <i>atra</i> , Bl.	(p. 4).
„ <i>affinis</i> , Bl.	(p. 6).
„ <i>cornigera</i> , Bl.	(p. 6).
„ <i>reproba</i> , Cambr.	(p. 7, pl. 1, fig. 5).
„ <i>Clarkii</i> , Cambr.	(p. 7).
„ <i>inerrans</i> , sp. n.	(p. 7 and 11, pl. 1, fig. 3).
„ <i>decora</i> , Cambr.	(p. 7, pl. 1, fig. 4).
„ <i>subtilis</i> , Cambr.	(p. 7).
„ <i>festinans</i> , sp. n.	(p. 7, and 13. pl. 1, fig. 2).
„ <i>nigriceps</i> , Cambr.	(p. 8).
<i>Walckenaera nemoralis</i> , Bl.	(p. 8).
„ <i>ludicra</i> , Cambr.	(p. 8).
„ <i>scabrosa</i> , Cambr.	(p. 8).
„ <i>subitanea</i> , Cambr.	(p. 9).
<i>Linyphia prudens</i> , Cambr.	(p. 9).
„ <i>errans</i> , Bl.	(p. 9).

FAM. EPEIRIDÆ.

<i>Singa albovittata</i> , Westr.	(p. 10).
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DESCRIPTION OF PLATE I.

- FIG. 1. *Cryphoea moerens*, Cambr.; *a*, adult female, magnified; *b*, profile without legs; *c*, eyes from above and behind; *d*, maxillæ and labium; *e*, genital aperture; *g*, natural length of spider.
2. *Neriene festinans*, Cambr., sp. n.; *a*, adult male, magnified; *b*, profile without legs; *c*, profile of abdomen (female); *e*, right palpus of male, from inner side, above and behind; *f*, portion of left palpus from above above and behind; *d*, natural length of male; *g*, genital aperture (female).
3. *Neriene inerrans*, Cambr., sp. n.; *a*, adult male, magnified; *b*, profile without legs; *c*, caput from in front, showing the eyes; *d*, right palpus from inner side; *e*, genital aperture (female); *f*, natural length of spider.
4. *Neriene decora*, Cambr.; *a*, adult male, magnified; *b*, profile without legs; *c*, eyes, and outline of lower part of clypeus, from above and behind; *d*, left palpus, looking on the inner side sideways; *e*, natural length of spider.
5. *Neriene reproba*, Cambr.; *a*, genital aperture (female); *b*, ditto viewed more horizontally.





A Study on the Invasion of the South-West of Britain by Vespasian,

With Light from the British Chronicle, the Brut y Breninoedd.

By W. BARNES, B.D.



THE Chronicle of the Kings is that on which Geoffrey of Monmouth grounded his British History, which he has eked out with much fine writing that does not go to confirm the British Brut, and he has made a sad hash of the British names. Vespasian's inroad on the south-west shore of Britain, the land of the later kingdom of the West Saxons, cannot but be interesting to us, whose homes are now on the same ground. The Roman writers have left a very short history of it, while it is so markworthy that we may wish to know more of it. Suetonius, A.D. 92, 15 (Vesp. 4), says:—
‘ Claudio Principe Narcissi gratiá legatus legionis in Germaniam missus est (Vespasianus) made in Britanniam translatus, tricies cum hoste confluxit duas validissimas gentes, super que vigint oppida, et insulam Vectem Britanniae proximam in ditionem redegit, partim Auli Plautii, legati consularis, partim Claudii ipsius ductu.’ Suetonius (A.D. 120):—“Under the Emperor Claudius, by the favour of Narcissus, Vespasian was sent as legate of a legion into Germany, and thence was transferred to Britain. He fought thirty times with the foe, and brought two very strong tribes, besides twenty strongholds and the Isle of Wight, very near to Britain, into homage (to the Roman power)

partly by the leading of Aulus Plautius and partly by that of Claudius himself." Tacitus V. H. (A.D. 95):—" Divus Claudius auctor operis, transvectis legionibus auxiliis que et adsumpto npartem rerum Vespasiano, quod initium venturæ mox fortunæ fuit. Domitæ gentes, capti reges, monstratus satis Vespasianus.' " Claudius was the author of the undertaking, legions and auxiliaries being brought over, and Vespasian being taken into a share of the work, which was the beginning of a soon coming good fortune. Tribes were overcome, Kings were taken, and Vespasian was clearly enough shown forth as a general." Eutropius (A.D. 360):—" Vespasianus huic (Vitellio) successit, privatâ vitâ illustris, ut qui Claudio in Germaniam, demde in Britanniam missus, tricies et bis, cum hoste confligit, duas validissimas gentes, viginti oppida, insulam Vectem Britanniæ proximam Imperio Romano adjecerit." "Vespasian followed this man (Vitellius), illustrious in his private life, as one who, being sent by Claudius into Germany and then into Britain, fought thirty-two times with the foe, and added two very strong tribes, 20 strongholds, and the Isle of Wight, very near to Britain, to the Roman Empire." Richard of Cirencester gives by name the very strong tribes, whom, as we are told by the Latin writers, Vespasian overcame, the Belgæ and Damnonii (R. of Cirenc., Bk, 2, ci., xiv.), and we can find reasons for the truth of this part of his history. Now, Roman history does not tell us where Vespasian landed or first fought with the Britains, or where was the first stronghold that he took, or who were the Kings whom he brought into homage to the Roman power; put it may be worth while to see what light may be cast on these points by British history, as in the "Brut y Brennoedd"—Chronicle of the Kings. Some classical scholars may be ready to believe that where British history tells of things of which Roman writers have also spoken, and does not wholly confirm them, the Roman history is the true one and that the British must be untrue, wherever it does not match the Latin truth so taken, but in warfare, as in other matters, all tribes of men are wont to make before the world the best of their doings and misdoings. If

on-comers against a stronghold were to find its fire too hot to withstand, and to betake themselves back out of its reach, they might say they had withdrawn for strategical purposes, and the defenders might say they had repulsed them with loss. Cæsar says that in his lighting with the Britons on his march against Cassibelaunus, a great number of them being slain (*magno numero eorum interfecto*) they fled, but he does not say that he lost a man, or that one Roman was pricked even through the skin with a British spear. On either side it is not uncommonly said that their own loss is slight, but that of the other very severe, rather than that their own loss was heavy, whatever that of the other might have been, or that the loss of the foe was small. To get the truth we should hear both sides, and it seems that where British chronicles would be reasonable without any Roman or Saxon history against them, it would not be unwise to give them a fair allowance for some share of the difference. In the Chronicle of the Kings (*Brut y Breninydd*) we are told that at the time of the invasion of Britain by Vespasian, the Head King of Britain (*Unben Prydain*) was Gweyrydd, from whom, to understand the case more clearly, we should go back to the time of Caswallawn, the Cassibelaunus of Cæsar's Commentaries. Cæsar (*Comm. Lib., v. 21*) says that Mandubratius, a young man, son of Imanuentius, Prince of the Trinobantes (Londoners), who had been slain by Caswallawn, had fled to Cæsar in Gaul to seek help against him, and that he (Cæsar), upon receiving of some hostages sent to the Trinobantes a force of men with their young Prince, and this will stand good with Cæsar's commentary that Caswallawn had built his stronghold for home wars. It would seem, however, that although Cæsar had forbidden Caswallawn to make war on Mandubratius, he must, after Cæsar had left Britain, have driven him out, and put up in his stead his own nephew Avarwy, who is given by the Brut to the Prince of the Trinobantes, and he was at some time at the court of Caswallawn with his nephew Cahelm, where was also Hirlas, nephew of the king. Hirlas tilted with Cyhelin and happened to kill him.

Then there was wrangling with Caswallawn and Avarwy on the point of jurisdiction for the trying of Hirlas for manslaughter, if not murder, whether he should be tried in the jurisdiction of Avarwy (the Trinobantes) or that of Caswallawn (the Cassii), and it was followed by a deadly feud and even war, as Caswallawn beset London, and unhappily Avarwy sent over to Gaul to ask Cæsar for help. Hence Avarwy is called in a historial triad one of the three traitors of the Island of Britain, Gwrteyrn (our Vortigern), who called in the Angles, being another. The Brut says when Cæsar came again to Britain, Caswallawn was besetting London, and went to meet him in a woody glen near Canterbury, which may mean that he went to his stronghold at St. Albans, an "oppidum," as Cæsar says, "sylvis et paludibus munitum" (Comm. v., 11). Though some may not call St. Albans near to Canterbury, but two or three days' march may not have been thought very far by the writer of the chronicle, or he might not have known how far London and St. Albans were asunder. When peace had been made between Cæsar and Caswallawn, Avarwy withdrew to Rome, and not unwisely so, as he could hardly be free of peril from the true-hearted Britons, who had marked him by the name Bradwr (traitor), for having called the Romans into Britain. Avarwy having left Britain was followed in the kingship by Teneuvan, son of Ludd, Prince of Cornwall. He seems to have been a king of Romanish mind, and his son Cynvelyn (the Cunobelinus of Latin writers) is said to have been bred up at Rome by Cæsar, and to have paid willingly the Roman tribute. Gwydir and Gweirydd were sons of Cynvelyn (Cunobelinus). Gwydir, after the death of his father, took the headship, and withheld the Roman tribute, and Claudius Cæsar was sent against him, and beset Caer Peris (the British stronghold at Porchester), and Gwydir withstood the Romans, but was slain. His brother Gweirydd fought on a while, but was overcome by the Romans, and they took the caer, and he withdrew to Winchester, whither Claudius followed him, and after a while peace was made between them, and it is clear from what followed afterwards that he

became tributary to Rome, and Claudius went home. The Brut says that when Claudius made peace with Gweirydd he promised to give him a daughter of his to wife, and afterwards fulfilled his promise. It does not seem beyond belief that he might have given him a daughter born to him in the time of his earlier and lower rank of life. He was fifty years old when he took the purple (Eutropius), and was not a very good or high-minded man, and his Imperial wife Agrippina poisoned him. We learn from Suetonius that Claudius had children by three wives. By Urgulanilla, Drusus and Claudius, by Pelina Antonia, by Messalina Octavia, and a son whom he at first called Germanicus, and then Britannicus. Now the copy of the Brut called the "Brut Tyssilio" does not give the name of the daughter whom Claudius gave to Gweirydd, but I find from a note by the editor of an English version of it that a Welsh copy (in the Welsh Archæology and called the Brut Grussudd Arthur, calls her Genuylles. But Lo Genuylles, in which the u has taken the stead of an n, is clearly a British common noun, now written Gennilles, which means simply a young nymph, young lady or maiden, and was only an epithet for her, and could not have been her Roman name, which might have been *Claudia* or *Antonia*, or *Octavia*, though she might have been like many other brides and *Gennilles*, a young nymph, or young lady. Geoffrey, of Monmouth, wrote from a source with another form of the name, which he gives as *Genuissa*. Nor is it very wonderful that he should thus win a friend to the Romans in Gweirydd. It seems to me to be a fair step for a further footing of the Romans in the land thus to win a son-in-law who was prince of the south-west of Britain and emperor of the whole island. Of the wedlock of a Roman nobleman (Pudens) with a British lady, most likely a princess of the king of Caractacus, Gwladys Rhyffydd, called by the Romans *Claudia Ruffina*, we have a witness in Martial, who wrote two epigrams on their union. By the Brut we are told that after Claudius had given his daughter to Gweirydd he built a city (a Roman castra) on the Severn, which from his name was called *Claudia castra*, in British *Caer Gloew* (Glouces-

ter), on the boundary between England and Wales. Why in the world, you may say, did Claudius build a Roman temple for Gweyrydd, a Briton of the Druidic faith? Well, I suppose he built it for his daughter, the wife of Gweyrydd, that she might enjoy Romish worship here in Britain. Then some while after Claudius had left Britain Gweyrydd withheld the Roman tribute, which very likely he could not readily get from his Britons, who did not feel at all the happier for his homage to Claudius, and therefore Claudius sent Vespasian against his Princesdom. The Brut says that Vespasian tried to land at Rutupia (Richborough), and nothing can be more likely than that he would try to put in there. He came from Germany, and to wage war against Britons, and surely with a fleet of galleys, with a legion of about three or four thousand Romans, and about as many auxiliaries, he must have wished, ere he could launch into warfare, to fit his ships and to ship stores for his host of men, and where could he look for his new outfit better than at the Roman keyhaven to Britain? as was Cæsarea to Judea—Rutupia or Richborough. Then it is said that he was kept from landing by a strong force led on by Gweyrydd, then the Unben (head-king) of Britain, and so, therefore, he made for Totness, where he landed and immediately fell on Caer Penhuyloet. It does not say that Vespasian landed his men and that they fought at Rutupia, and whether or not they withdrew from fear of the Britons may be tried by the knowledge that comers and keepers, as we have already said, make the best of their case, and the Britons might have too readily believed that the Romans went down the Channel from fear of them, though I do not believe that Vespasian meant to bring war against the Britons of Kent, with whom Claudius had no feud. Albeit Gweyrydd was head among the princes of Britain, "Primus inter pares," he had, like each of the others, a princesdom of his own, and while he withheld the tribute for his own land, we may believe that he left others, as the Kentish princes, to pay it as freely as they would; and if we can find where was his princesdom, we can see where Vespasian would go to strike his stroke of war. Now, as

we have already shown, Gweyrydd was the son of Cynvelyn (Cunobelinus), who was son of Teneuvan, Prince of Cornwall, and so it is clear enough that Gweyrydd was Prince of Cornwall; but the dukedom of Cornwall so called was very broad; taking in the shire of Cornwall (Cerneu), and Devon (Dyvnamt), and Dorset, with some share of Somerset, the immense arm of Britain, as Richard of Cirencester calls it, that reaches from Dorset to Land's End. So in the Iolo MS. in a list of territories or possessions, Devon (Dyvnamt) and Cornwall (Cerneu) are put as one territory, reaching from Artlechwedd Galedm, and along the mid-seas to the British Channel (Mor Udd, main sea), and therefore Vespasian came away from the Roman Rutupia to strike Gweyrydd in the side on the shore of South-west Britain. As Vespasian might or would have known of the wrecking of some of the ships of Julius Cæsar on an open shore in Kent, so he might well have chosen the shores of Totness, where the broad estuary of the Dart might hold his empty galleys on smooth water, while his men would be on shore in warfare. Geoffrey of Monmouth says that the Saxons who had come down to the south from the north of Britain, and whom King Arthur had overcome at Bath, had landed at Totness. The Brut says that peace was made between Vespasian and Gweyrydd by the intercession of the Queen, which matches with the history of the Brut already quoted, that his Queen was a daughter of Claudius, a Roman lady, and she therefore, like one of the Sabine wives in the early days of Rome, made peace between her own kin and that of her husband. Nor is it wonderful that such a Roman lady should so far play the office of a Sabine bride as to try to make peace between her British husband and her own people through Vespasian, a Roman? By the Brut again, as soon as Gweyrydd was told of this onslaught of Vespasian at Totness he made his way for Penhwylcott, and reached it on the seventh day, and began a bloody but bootless battle, in which he was overpowered by the number of the Romans. Now, some may believe that Gweyrydd was at Ruputia (Richborough), when he was told of Vespasian's landing on the shore of Totness, and

therefore he could not have marched to him in seven days, but there is no need of our believing that he was there, as there were other places, at one of which he might have been, but there was only one whence he could march to Totness in seven days. In the Iolo Manuscripts (p. 63) among some laws of kinship is one (I know not whether it is of the early time of Gweyrydd) that the main kingly residences of the head-king (Unben) of Britain, were the cities of London, Caerlion on Usk, and York, in each of which places he had a right to a national palace, just as the President of the United States has a right to the White-house. All these places, however, are too far away for such a march to Totness. Where was he, then, you may ask? I answer at home—at Caer Gloew (Gloucester), which I believe is about 120 miles from Dartmouth, and a march of seven days at about 17 miles a day would bring him to the shore of Totness as the Brut says it did. After the peace, says the Brut, Gweyrydd and Vespasian went together to London. Why to London? Because we have seen it was one, and the main one, of the triad of the head-king's abodes, where he might well wish to lay matters before a national convention. When winter came on Vespasian went back to Italy, having already sworn Gweyrydd to steadfast fealty to Rome. Gweyrydd would surely have a home in his own dominion in the west, and we have many very clear marks which, together, becomes proof that it was Caer Gloew (Gloucester) where he was buried, and where Claudius is said to have built a temple, which might well have been the Roman temple in which he was buried, and this matches with the history that he wedded a daughter of Claudius, who might have built it for his daughter's use in Roman worship, and that he was there buried with his wife. The form and later history of Gloucester would match very well with the British history that it was founded by Claudius, since it was a Roman castra with a vallum of four sides and a gate in each, and became a Roman colony, and, it may be one, of the earliest in Britain; and what is more likely than that a Roman colony should be settled at Gloucester, so that

the Roman Queen of Gweyrydd shall have a Roman population round her, or that her husband should give the land for it.

Geoffrey says that Vespasian landed on the shore or beach of Totness, and I am kindly told by a gentleman of Totness ? Edward Wyndeatt, Esq., that Totness shore does not necessarily refer to the town of Totness. Totness shore included the whole district, stretching from Barryhead to the Boll, and it seems probable that as Prawle point, once thought the most southern point of England, lies in these boundaries, that the original Totness is to be found in this headland, and thus the whole coast was named from it. In the course of time the name was confined to its chief town. This is very likely, but Totnes, English, could not have been the old British name of the town, for Totnes must have been a ness, a headland, as Sheerness, and tot is the short form of the Somerset toot, Dorset tout, a spy or watch or outlook hill, and, therefore, could not have been given at first to the ground of Totnes town, but must have been taken from a true Totness or outlook headland. The Brut does not say that Vespasian marched to Caerpenhwylcoit, but that on landing he immediately beset it, as if it was close at hand. The copies of the Brut differ in the name of the hill where the Romans first fought with the Britons. In one it is "Pensaulcoit," and in another "Penhwylcoit," and neither "sawl" nor "hwyl" can be the true word, as neither of them is of any good meaning for the spot. Geoffrey calls it Caerpenhuelgoit (now Exeter). He is right as to goit for coit in the compound word, but wrong as to Totness, which was not Exeter, "Caeresc." I believe that hill, the Pen to have been the true Totness or watch or outlook promontory down on the seashore, and that its true name was "Penwylcoit," "wyl," the soft form of "gwyl," meaning a watch, and grammatically it is the soft form which ought to come in its place in the compound word "penwyl" after "pen," and so penwylcoit would mean the "watch hill wood," and "penwyl" would have the meaning of the Saxon "Totness," "Toutness," the watch hill or promontory, and I believe it was the Totness (Toutness), and that a later copier had

slipped in the then well known Saxon name for the British one, although he called the stronghold by the old British name. The word "gwyl" (wyl), and its verb "gwylio" are commonly used in the Welsh Testament for a "watch" and "To watch." In the 16th Iter of Antonine the Roman Station in the stead of the town which is now called Totness is called Durius (Dwr.), the water, meaning the broad estuary of the Dart to which the Latin writer put on the words Amnis, a river, to show that the water was not the open sea. Some Antiquaries, as they may have gone over the Downs of Dorset, and have come upon one of its many earthworks of sundry kinds, may have thought that they had found one or two of Vespasian's camps, and it may be well to bear in mind in what points such a camp should match a Roman castra of Vespasian's time. (1.) A camp of Vespasian should and would have been roomy enough for his men; one legion and the body of Auxiliaries; and a legion (as would be found in a dictionary of Roman antiquities) would have been three or four thousand men, who would have a helping force of about as many men with some cavalry. (2.) The earthwork should be of the then common shape—a parallelogram with four gates, one on each side. (3.) It should bear the tokens of Roman handiwork in finish and straightness of line. (4.) It should be near to water. A body of eight thousand men would hardly cast up a high mound (castra) a mile or two from any water, or stream, or spring. An Indian officer once told me that a man who went ahead of a force to mark out their camp for the night forgot water, and the weary and thirsty men, on reaching their so thought place of rest and refreshment, had, to their sorrow, to march on again over the Beaban (waterless land). And it would hardly be wise to overlook the question whether Vespasian, in his seemingly fast march, cast up strong earthworks for a night's halt. As he took one after another of the British earthworks he had each of them that he took for his own use.

"What is in a name?" has been asked. Well, sometimes much weight, of which the name Gwydir has some with me. Gwyder means water-ground or water-land, and there is a place

so called in Wales, but it seems that the earlier name of Glastonbury was Gwydir; now the Britons often took their names from those of the places of their birth, or home, or of lands belonging to their kindred, as now are wont to do the Welsh Bards and the name Gwydir seems to me to be a token that Glastonbury as Gwydir gave name to the King Gwydir, and that it betokens that he was of the kindred of a Prince of the West of Britain.

Glastonbury was in early times an island of waterland. "Youss-Wydir," and it is likely that the early Italian missionaries who settled there brought with them some choice apple trees, whence it was afterwards called "Ynys Avallon," the Island of Apples.

"Hirlas," again, the name of the nephew of Casibelamus, although it may seem a queer one for a man, was taken from that of the highly rated "Hirlas-horn." It means "Long blue," and the Hirlas Mead-horn was so called as it was made of the horn of the buffalo, chosen for its size and the blueness of its hue. Such names as these, of true British shape and meaning, are tokens of truth in the chronicle.

It is not easy to see the true British names under the Latin forms in which Geoffrey of Monmouth has put them.

He calls Hirlas Hirelglas (las is the soft-horn of glas), but whence he got *el*, or what meaning it can have in the name, I cannot see. Cyhelyn, the nephew of Avarwy, he calls Evelinus, and in his seemingly too free paraphrase of the chronicle, on the tilting match, he names dvarwy as Androgeus; a name that can hardly oust Avarwy from the triad of the three traitors of Britain.

I cannot make anything of Androgeus as Welsh, unless the *an* is the old Celtic definite article *an*; which lingered in the British of Cornwall, as it lingers in Irish, so that the name might be a nickname, "Andrwg," The "Bad (man,)" as the Britons thought him to be.

He makes Gweyrydd to have been the Ac-vicagus of Cæsar, which has been an open question, wanting more attention.



On the Occurrence of the Dotterel in Dorset.

By Professor J. BUCKMAN, F.L.S., F.G.S.



IN the 16th of May of the present year (1884) Mr. Masters, my Bailiff, brought me a pair of birds which he had shot on my farm, thinking that they were the young of the Peewit. I soon however determined that they were specimens of the Dotterel *Charadrius. morinellus* and knowing their rarity and that they would not stop in the neighbourhood, I directed that a sharp look out should be kept for any more, in consequence of which three additional specimens were brought to me in the afternoon.

As this is only about the second time that this bird has been taken in Dorset, I am anxious to correct an error which some have fallen into namely, that of confounding this bird with the *Charadrius hiaticula* the ringed plover: Dottrell (sic) of Gould. The following is a description by Mr. Heynsham of a young female; Forehead, throat, sides of face, cream-yellow, covered with small spots and fine streaks of greyish-brown, crown of the head, occiput and also the feathers on the back, dark brown, all more or less broadly edged with buff orange. Scapulars and wing-coverts olive green, deeply edged with reddish white; tail the same, finely margined with white, the centre feathers broadly tipped with reddish white, and the three lateral ones on each side ending in a large irregular whitish spot. Sides of the neck, flanks, and a broad band above each eye, buff orange, the former finely streaked with greyish brown, breast cinereous, slightly tinged with reddish white, and marked on each side with large spots of olive green. Belly, white,

finely spotted here and there with greyish brown. Bill, black, Irides dark brown. Legs, pale olive green, soles, brightyellow."

We extract the following from the same volume, as it appears to us to be the best description we have seen of this rare and interesting bird. *

"The Dotterel is a summer visitor only to this country. Making its appearance in the South-eastern Counties of England towards the end of April, and does not seem to go in any numbers for the westward. Mr. Thompson says it is a rare visitant to Ireland, it has not been seen more than once or twice in Cornwall, and only occasionally in Devonshire and Dorsetshire. In Wiltshire, Berkshire, Hertfordshire, Cambridgeshire, Suffolk and Norfolk, small flocks, or trips as they are called, of Dotterel are seen in the spring on their way to their breeding ground, which, in many instances, is very far north, and those, or others, are again seen in the autumn on their return, their numbers then reinforced by the addition of the young birds of the year. On the chalk hills about Royston on the borders of Hertfordshire and Cambridgeshire, these birds have been observed for many years to make their first appearance in each season by the 20th of April; they are seen for about ten days some probably moving on to the northward, and their places being supplied for a time by other arrivals from the south. They are found generally on the fallows, or newly ploughed lands near the edge of the downs, or sheep walks, where they appear to feed on worms, slugs, insects, and their larvæ. From these counties the birds pass on to more northern localities, and are seen in Lincolnshire, Derbyshire, Yorkshire, Lancashire, Westmoreland, Cumberland, Northumberland, and various parts of Scotland, always inhabiting high ground. They are generally seen in these northern districts in May.

Dr. Beck, of Copenhagen, told me that the Dotterel pass the islands at the mouth of Baltic about the first of June, and disperse over Scandinavia. Professor Wilson mentions their

* Yarrell's British Birds, vol. ii., p. 400.

annual visit to Sweden. Mr. Hewitson saw some on the ploughed fields of Norway. Linnaeus says they are frequent in Dalecarlia and the Lapland Alps, and they are known to go as high as the sixty-seventh degree of north latitude. They are said to breed also in Russia, Siberia, and Northern Asia. The best accounts of the habits of this species at its breeding ground, has been supplied by T. C. Heysham, Esq., of Carlisle, from which the following is an extract:—"I will now narrate, says this gentleman, as succinctly as possible what has fallen under my own observation relative to the habits and economy of this bird. In the neighbourhood of Carlisle, Dotterels seldom make their appearance before the middle of May, about which time they are occasionally seen in different localities, in flocks which vary in number from five to fifteen, and almost invariably resort to heaths, barren pastures, fallow grounds, &c., in open and exposed situations, where they continue if unmolested, from ten days to a fortnight, and then return to the mountains in the vicinity of the lakes to breed. The most favourite breeding haunts of these birds are always near to or on the summits of the of the highest mountains particularly those that are densely covered with the woolly fringe-moss, *Trichostomum lanuginosum*, Hedw., which indeed grows more or less profusely, on nearly all the most elevated parts of the alpine districts. In the lonely places they constantly reside the whole of the breeding-season, a considerable part of the time enveloped in clouds, and almost daily drenched with rain or wetting mists, so extremely prevalent in these dreary regions, and there can be little doubt that it is owing to this peculiar feature in their economy that they have remained so long in obscurity during the period of incubation. The Dotterel is by no means a solitary bird at this time, as a few pairs usually associate together, and live to all appearance in the greatest harmony. These birds do not make any nests, but deposit their eggs, which seldom exceed three in number, in a small cavity on dry ground covered with vegetation, and generally near a moderate size stone, or fragment of rock. In early seasons old females will occasionally begin to lay their

eggs about the 26th of May, but the greater part seldom commence before the first or second week in June. It would appear, however, from the following facts, that they vary exceedingly in this respect. On the 19th July, 1833, a perfect egg was taken out of a female, which had been recently killed on Robinson, and on the 26th of May, 1834, I received four Dotterels from Keswick, which had been shot on Great Gravel the day before. In the ovary of one of these I found an egg almost quite ready for exclusion, being a difference of nearly eight weeks. So great a discrepancy in all probability is of rare occurrence, yet it will subsequently appear that eggs recently laid, and a young bird a few days old, were found on the same day, at no great distance from each other. The males assist the females in the incubation of their eggs. How long incubation continues I have not yet been able to ascertain, but I am inclined to think that it rarely lasts much longer than eighteen or twenty days. A week or two previous to their departure, they congregate in flocks, and continue together until they finally leave this country, which takes place sometimes during the latter part of August, at others not before the beginning of September. A few birds no doubt are occasionally seen after this period, but they are either late broods, or birds that are returning from more northern latitudes. This autumn I visited several breeding-stations on the 25th of August and again on the 2nd of September, but in neither instance could I observe a single individual." *

* *Ibid.*, vol. ii., pp. 392-5.





A Study on the Belgæ in South Britain.

By Rev. W. BARNES, B.D.



WE can hardly take up the early history of British Dorset, without finding that we bring under our minds the neighbours of the Durotriges, the Belgæ, of whom we should wish to know something. Cæsar says that the inland part of Britain was inhabited by a home-born and home-sprung race, and the seaboard by those who for the sake of booty and warfare had come over from the Belgæ. CAESAR, Comm., L.V., c. 12.

Britanniae pars interior ab iis incolitur quos natos in Insula ipsa memoria prodittum dicunt; maritima pars ab iis qui prae-dæ ac belli inferendi causa ex Belgis transierant, qui omnes fere iis nominibus civitatum appelleantur quibus orti ex civitatibus eo pervenerunt, et bello inlato ibi remanserunt, atque agros colere coeperunt.

Cæsar writes also that the Belgæ from whom Belgæ came into Britain, held one of the three shares of Gaul, and were sun-dered from the true Gauls by the rivers *Matrona* (*Marne*) and *Sequana* (*Seine*). They were a hardy people as being farther from the Roman Province of Gaul, and had less commerce with chapmen of Roman luxuries, and were near the (Teutonic) Ger-mans beyond the Rhine, with whom they were wont to war.

Now *Ptolemy* puts the Belgæ in Britain below the "Atre-bates" and "Cantii" of Kent, but above the Durotriges of Dorset, and, gives as their main towns, *Ischalis*, *Bath*, and

Winchester, and thence we may infer that they would have first taken the shore of Hampshire. Richard of Cirencester gives "Ischalis" with Glastonbury, and seemingly Bath to the Hedui so that they must have been of the Belgic kin.

Now were these Belgæ who won a footing in Britain of Celtic or Teutonic blood? I hold they were Celtic, or so far so, that the Teutonic kin was soon lost in the Celtic.

Richard of Cirencester says that they had sprung from the "Belgæ" and "Celts" (Gauls) of Belgium, and so to his mind there were two races in Belgium, and by Belgæ he must mean the Teutonic, not Celtic Belgæ, as I believe they were.

But what means the name of Belgæ? Men of Belgium it may be said, but I hold that the name Belgæ gave the name Belgium to the land, and was not taken from it.

The land known to the Romans as Belgium, was, as it has been in later times, one in which the two races, Celtic and Teutonic met in a very rough unfriendly edge; the line of the onpushing of the Teutonic Belgæ into the Celts. When Cæsar wrote that the Belgæ differed from the Celtæ (Gauls) in speech, customs, and laws, he most likely had in his mind, the Teutonic kin, who were indeed the first and true Belgæ; for the name *Belgæ* seems clearly to be a Celtic one which he had heard among the Gauls.

Belg, in Welch is an outbreaking, or ravaging, or raid; and *Belgiad*, or *Belgwys*, means outbreakers or ravagers, or plunderers; a name by which the Celtæ would hardly call themselves if it had been true for them, but one by which they would very likely call the Teutons, who were wont to worry them by raids. But it does not seem that the British *Belgæ*, as Cæsar calls them, since they had come over to Britain from the Belgæ as a share of Gaul, were the Belgæ so called by the Gauls, that is to say Teutons, but they were, I believe, of the Celtic stock of the two-kinned Belgium.

A French writer* says that the truest distinction that one can

* "Histoire de Belgique," Tournai.

make of the ancient Belgium, is that of the north, the German (Teuton) kin, and the south the Gaulish kin.

The Teutons, the true Belgæ of Cæsar's Belgium might have become in Cæsar's time the stronger folk, and might have spread the name of Belgium over some of the Gallic lands, into which they had made way. Of 3 Historical Triads of inroads of tribes into Britain

TRIAD I. IS

“The 3 Friendly Tribes of the Isle of Britain.

1. The Cymry.
2. The Lloegrwys who came from Gwasgwyn (Gascony.)
3. The Brython or Britons so called in French and English who came from the land of Armorica or Brittany.”

They were all three of one kin and speech, and came in peace and good will.

Their offspring were the main body of the Britanni of the Roman writers.

The “Lloegrwys” are understood to have settled in our England, which the Welsh call “Lloegr;” and to have been “Ligurians” from “Liguria” and men of the Celtiberians or Celts of the Basin of the Iberus or Ebro.

Tacitus believed that the face hue, and curly hair of the Silures in Wales betokened that they had sprung from the Iberians or Celtiberians of Spain, but this does not stand with the opinion that they were “Lloegrwys” who settled in Lloegr (England).

TRIAD II.

The 3 Tribes that came into Britain, and afterward went again hence.

1. The men of Lychlyn.
2. The hosts of Ganvel, the Irishman, who were here 29 years.

3. { The Cæsariad
or Romans

TRIAD III.

The 3 tribes who came to Britain and stayed on, and never

went hence again.

1. The Coraniaid.
2. The Irish Picts.
3. The Saxons.

Now since we clearly understand that the Belgæ were a tribe who settled in Britain, and never went hence again, we must see that they ought to have come into the Triad III., but they are not in that Triad by the name of Belgæ, nor are there at all unless they were the Coraniaid, and I do not think it unlikely, but believe, that they were so, and were Gaulish Celts, and of the stock of the Walloons of our days.

But why did not the Britons call them "Belgæ?"

Because either they did not know the name which was given to them by the Gauls, or else they were not of the race so called by the Gauls; the Teutonic race.

Why did the Britons call them "Coraniaid?"

I am told by a lady who lived for some years among the Walloons, that they are very dwarfish folks, but no less clever.

Strabo (L. iiiii.) says of the Britons that they were taller than the Gauls, and that he had himself seen at Rome very tall young men (Britains) half a foot higher than the home born Romans.

So that the Britons might have been very ready to call Walloons, unwelcome as they felt them in Britain, the Dwarfish, set, Y Coraniaid." In Celtic Welsh "Cor" means a Dwarf, and "Coran," Dwarfish, and "Coraniaid" would mean the Dwarfish folks, or set.

The Walloon speech is clearly, as is the French, a tongue shapen by the grafting of Latin, on a Celtic stock of speech, and not a Teutonic one, and there is nothing in the writings of the Romans to show that they found in the south of Britain in Hants or Wilts or elsewhere a people whom they must have marked as Teutonic Belgians, or such as they could not take for Britains of the common Celtic stamp. The leaders

with whom they fought and the strongholds which they won are named by the words which are clearly, in body, words of Celtic speech, and the anonymous geographer of Ravenna gives a long list of towns in Britain, and some of them in Belgic Britain, under Latin forms of British ones, but none of them of Teutonic ones; and it is not said anywhere in the chronicles, or other writings of the Saxons, that, in their fightings with Islanders, in Wessex, they met with a folk other than Celtic Britons, or with men of a speech akin to their own. Whether they fought in Hants, Wilts, or Somerset, or elsewhere, they fought with the Weallas, as they called the Britons, so that we have no ground for believing that there were any Teutonic Belgæ above Dorset. Our word *Welsh* for the Cymry is a Teutonic one meaning foreign.

S. Welisc	}
Waelisc	}
Ger Welsch	}
Wälsh	}

The Germans call French or Italian, Welsh, and, in Dorset, walnut is welshnut. Cæsar V. 12 says that the Belgæ who settled in Britain began to till the ground. These landtilling Belgæ could hardly be the Teutonic ones, who by Cæsar (Com. L. 1.) and other authorities, were very rough and warlike, and the least civilized of the tribes of Gaul, and so cannot seem to have given themselves to tillage. Strabo sets the Belgæ between the Rhone and the Loire, and says with Cæsar that they were brave, and wore a rough little cloak or mantle. "*Laene*," Llen, *Welsh*. The *Lat.* *Laena*.

These Belgæ were surely Celtic as is thus shown by the Celtic name of their mantle, *y Llen*, as the Welsh might now call it; and it is markworthy that the Gaul who is carved as before his hut on the Antonine column at Rome is given, as clad in a tunic with such a little cloke or mantle, a *Llen*? hanging over his shoulder.

It was therefore a Gaulish robe, and so a strong token that those Belgæ were Gauls and not Teutons.

Some have quoted a Welsh tradition that Coraniaid came to Britain from "Pwyll," which others have thought to mean "Poland," a most wild opinion. I have not the Welsh words, but if they are "Odd bwyll," the grammatical soft form of "Odd pywll," they would seemingly mean "From force" rather than from Poland, for a meaning of Pwyll is a driving force, such as might be called that of the Teutonic race on the Gauls, and the Celtic Belgæ might have fled to Britain from the oppression of the German Belgæ who pushed them from the north, and in Britain they themselves brought on the Britons the oppression which is called in a Triad the oppression of the Coraniaid. A historical triad, speaks of three oppressions. That of 1, the Coraniaid; 2, the Romans; 3, the Saxons. Some Belgians fled to Britain from political vengeance in the time of Cæsar. Cæsar, B. G. II., 14. A triad tells of three outfarings of British forces for warfare, the first of which weakened the Britons so much as to give a chance to the Coraniaid for their inroad and oppression. Cæsar, B. G., IV., says that he hastened to go on into Britain because he understood that in almost all the Gallic wars, forces were afforded thence to the Gauls, a proof that Britons of that time bore their weapons out of Britain. The Coranians are said in the magic tales for children *The Mabinogion* (vol. III., 300) to have been one of three plagues of Britain, and the tale adds that their knowledge was such that there was no talk in Britain so low, but that if the wind took it to them did not become known to them. This betokens only a tradition that they were keen witted and clever. It is said in the *Greal* (not the *San Greal*) that their coin was, *Arian Cor*, Dwarf's money, whatever that may mean, unless it means the Coranians' money. Cæsar (B. V., 12) says that nearly all of the Belgic settlers in Britain were called by the tribe-names "*Nominibus civitatum*," of the tribes from which they had sprung in Gaul. This should be received warily, as there were cases of two tribes, one in Britain and the other in Gaul, of the same name from other causes than that of kindred. Geoffrey calls the Belgæ in Britain *Allobroges*, and Cæsar calls a tribe on the continent *Allobroges*, what then?

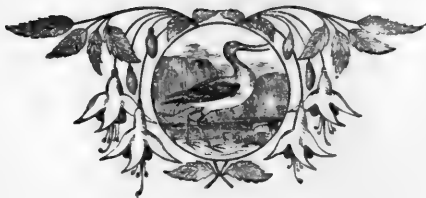
Allobroges is a Latin form of a Celtic word meaning simply foreigners: All-bro-og, of another land, whether of another race or not, foreigners to some Celtic folk who called them so. The Allobroges (Belgæ) were foreigners to the Britons, and the Swiss Allobroges were foreigners to the Gauls. There were Atrebates, so-called in Britain, and in Artois in Gaul, but not in Belgium; but the A-trebates were so-called as it is pretty clear from the Celtic for villages. In Welsh "y Treivydd." The villages of a thick population in rich open land and no-few-folked wood or marsh. Treviri is a name of much the like meaning; Trevyr, the village men.

The Durotriges of Dorset were sometimes called Mouni, and there were Morini so called in Gaul, and if they were Belgæ, yet the Durotriges were not, and Morini betokens that they were so called as dwelling Ar y Môrin, By the Little sea at Wareham in Britain.

The names of the sundry tribes of the Belgæ of Gaul do not show themselves in those of the Belgic tribes in Britain. The Hedui or Haedui of Somerset seem to have been a Belgic tribe, but the Haedui or Hedui of Gaul were not so, and if they had been their name is clearly Celtic, and they might have dwelt on a Heddwy, a Smooth or gliding water. The main cities of the Belgæ in Britain were Caerwent (1), (Venta Belgarum; (2), Winchester (2) Ischalis and (3), Caer Baddon, or y. Baddon, Bath, but if the Belgæ, founded and first so named those places, they must have been so far Celtic as the Cymry of Wales, who had, as they still have, a Caerwent (Venta Silurum) in Wales. Ischalis sounds very strongly of Esc., the West British for a stream or water, or "Escol," Waterly, but not of Teutonic speech, and "Caer Baddon," the stronghold of the Baths, and "Nant badden," the Dell of the Baths, for the dell of the Avon from Bath towards Bristol, is pure British. If the Belgæ found Winchester or any other place with a Celtic name, "Caerwent," as that of Caerwent in Wales, or Caer Odor yn nant Baddon, for Clifton, meaning the stronghold of the split in the dell

of the Baths, so they kept it; though it seems (from the Cornoak or British of the West of Britain) the tongue of Lloegr under the force of inbrought speech, albeit it was Celtic, was worn off somewhat from the Cymric of Wales, if we may take that as the purer form of the Celtic of Britain. One may see that there were Morini in Gallic Belgium and that the British Durotriges, or those of their mother-town, were Morini, and believe the Durotriges were Belgæ. But they were not. The Belgæ did not hold Dorset.

If you look through the list of place names, in that of the Anonymous Geographer of Ravenna, you find that, whether they are the names of places belonging to the dominion of the Belgæ or elsewhere, they are Latin forms of Celtic British and not Teutonic words. Some Welsh traditions give down that some Coraniaid settled on the North-eastern shore of Britain. The upshot then to which I bring myself is that the Belgæ of Britain were, like the Britons themselves, a Celtic and not a Teutonic race, Walloons, and that after a while they so far mingled with the Britons that the Saxons never marked them from the other Britons of the South.





A LETTER

To the Rev. W. BARNES, B.D.,

On his Paper Entitled

A Study on the Bockley or Bockerley
Dyke, and Others in Dorset.

In the Proceedings of the Field Club, Vol. 5.

By Dr. WAKE SMART.

DEAR SIR,



HAVING given in time past a good deal of consideration to this subject, and more recently having read your paper with great and renewed interest, I feel constrained to offer you a few remarks thereon, with special reference to those points on which we agree, as well as those which we differ; but, in the first place, I beg to assure you that any statement which falls from your pen I receive with unfeigned respect; and, knowing that the elucidation of facts, without which no theory, however specious, can be of any real value, is equally your desire as it is my own, I am sure you will at once give me credit for the motive that induces me to address you.

BOCKLEY, or BOCKERLEY DYKE is a great work, differing in no essential respect from other earthworks of similar construction, attributed usually, and justly so, to the great Keltic race. In its course of some three miles across the open Down, it is seen to make three or four wide angles, the reason

for which is not very obvious or intelligible ; but I have no doubt may be explained by the fact, that it is easier to raise a vallum of considerable height, by scarping the sloping sides of hills, than by digging a deep trench and throwing up the soil along the level line of its course. Stukeley makes this observation in respect to Wansdyke " it makes several right angles to humour the edges of the other hills . . . the vallum is always on the South side." *

I am quite of your opinion that Bockley dyke was never intended to be a defensive work, in the military sense, for it would have been next to an impossibility to defend such an extended frontier ; but, on the other hand, that it was a territorial boundary, raised for the purpose of keeping flocks and herds within bounds ; and at the same time presenting a formidable obstacle to any marauding parties who might be urged with predatory designs on them. Last Autumn I made a visit to the Dyke with the express purpose of examining more particularly that remarkable spur which you mention as being connected with it. This spur consists, as you know, of a vallum and ditch extending at right angles to the main work a length of 57 yards, across a strip of the Down-land, and ending in what was formerly a cop-pice, within my own remembrance, but now is cultivated land. There is a sharp declivity into it, which is, no doubt the "dingle" you allude to. I measured and examined this earthwork very particularly, and have no hesitation in saying, that it differs in nothing, save that of being two or three feet lower, from the main work from which it takes its rise : and I believe it to have been made by the same people, at the same time, and for the same purpose, viz., to afford security to their cattle. Indeed it is manifest that they would not be secure without it ; therefore there is no mystery, as it appears to me in respect to its origin and use. The ditch is here on the West side, to protect the pasture on the East.

Fanciful Etymology has been busy with the names BOCKLEY

**Iter Curiosum.* Iter vi., p. 142.

OR BOCKERLEY. Mature reflection convinces me that we shall find the true etymon in Anglo-Saxon, and not elsewhere. The Saxon words *buc*, *bucca*, the male deer, and in the plural number, would in the speech of the Ceorl soon drift into *bok*, *boker*, which is the pronunciation now heard in the Teutonic speech of Germany and Holland: and I think we have proof of the same in the Saxon speech of England. For instance; the Manor of Buckingham in Sussex was in documents 4 Hen. IV., written Bokingham;* and the family of Buckenham of Norfolk were in those days Bokenham or Bockenham. Bokley or Bockerley, compounded of *Bok* and *leag*, points clearly to the fact that this Keltic earth-work was thrown across a tract of land, which, in early times became a favourite resort and feeding ground of the Fallow-deer, that harboured in the adjoining coverts, and were preserved by the King or Nobility for their recreation. The Saxons did not construct the Dyke, or any part of it, but found it there and named it Bockley dyke, the dyke of the deer pasture. I do not think it was of any special protection to those animals, for the deer would roam at large at their will on both sides of the dyke, through the gaps in it, and find their own favourite feeding ground. I should say that when the dyke was originally made, fallow-deer were probably unknown in these woods, although some remains of antlers have been, perhaps, found in the Keltic tumuli; but, the short-horned native ox, and the breed of sheep which survives even to this day, with its Portland and Heath varieties, were those denizens of the soil which called for this protection by the Keltic tribes.

I may further remark, that *Bockley* has its synonym in *Buckley*, a well-known surname, that follows the analogy of other surnames of like import, as, "*Cow-ley*"; "*Ox-ley*" "*Hors-ley*"; "*Ship (Sheep) ley*"; in which we get the name of the animal with its pasture-ground conjoined.

The etymology of "*Vindogladia*" seems to be still a moot point. I felt quite satisfied with your former suggestion tha

* Notes and Queries 6th, S. vi., 318.

the Latinized word "*Gladia*" represents the Keltic "*Gledd*," an open pasture, or greensward. It seemed to answer all the requirements of the Etymologist. It applies to the whole as well as part of that open pasture which extends from Badbury to Bockley and beyond it. I felt persuaded that I could recognise in that Keltic word our English "glade"; for this tract of pasture land, bounded on the West by extensive woodland, and on the East by other woods, and the stream, which having its head-springs in the very heart of the pasture, flows on to its confluence with the Stour, some ten or twelve miles distant, may with a little exaggeration be called a "glade" on a large scale. The Prefix "*Vindo*" illustrates the way in which the Romans treated Keltic words, when it suited their purpose, the original word being unquestionably "*Gwyn*" or "*Wyn*," "*Vin*," "*bright*," "*clear*," which might be applied to the stream as well as to the pasture. But there can be no doubt that "*Gwyn*" or "*Wyn*" was the name originally given to Drayton's "cleere Allin," and therefore "*Vindogladia*" may be reasonably interpreted as meaning "*The Pasture-land by the river Wyn*." Allow me to say, I do not think you get a better footing for the Etymology by changing your stand-point to "*Ventageladia*." I must remind you that this word is not to be found in the genuine text of Antonine's Itinerary; but you get it in that corrupt version which has been falsely ascribed to "Richard of Cirencester." It is simply one of the forger's many clever inventions which have deceived Sir R. Colt Hoare, and many others before and after him, to the great detriment of Archæological Science. The oldest and best codices of Antoninus, in The Vatican library and elsewhere, have been subjected to critical examination and collation, with this result, that "*Vindogladia* is the correct reading of this Station in his 15th Iter.

Allow me to say, I do not think you get a step nearer to the true site of the Roman Station by placing it any where near Bockley Dyke.

Before I close my letter I wish to offer a few remarks on the

tribes who inhabited this district, and constructed this earthwork, In so doing I may be rather tedious, as it is necessary to go back to primeval times, and to refer to the very alphabet of our science.

It is admitted that, at a very remote and unknown date, our shores were thickly peopled by tribes who, having migrated hither from Gaul, in time overspread the whole country. They are regarded as the Brythonic branch of the great Keltic race; to whom are attributed our round Barrows, and the entrenchments which crown some of our hills. In the second Century of our æra, Ptolemy wrote of them and called some of them *Dourotrigues* distinguishing them clearly from the *Dunmonii*, on the one hand and the Belgæ, on the other. No doubt they were very nearly allied to the latter people, without being identical with them. These, according to Cæsar, had passed over from Gaul and settled on our South Eastern shores, whence in time they extended, it is said, over Hants, Wilts, and a part of Somerset. They were, perhaps, a later immigration than the Keltæ, though still of a very early date. Both Belgæ and Keltæ were people of the Bronze Age. By a calculation I have made from 160 tumuli in Mr. Warne's "*Celtic Tumuli of Dorset*," 9 per cent. of these were found to contain Bronze dagger-blades; whilst from Barrows opened by Sir R. C. Hoare around Stonehenge, a much higher percentage of Bronze blades has been calculated; indeed it is said, "no other tumuli in England have been so productive of bronze dagger-blades, as those of Wiltshire." * From these facts we infer that the Belgæ of Wilts, being of later date, were more advanced in culture and in the knowledge of the use of Bronze than the Keltæ, the *Durotriges*, of the South West, in pre-Roman times. This inference receives also further proof from a comparison of the Tumuli; many of which in Dorset are very primitive; the pottery found in them being of the coarsest and most friable texture, and the incinerated bones often deposited in a mere hole scooped out in

* Mr. E. Stevens, *Jottings*, p. 136.

the ground, and accompanied with very rudely fashioned implements and weapons of flint. This may mark, I think, a higher grade of antiquity. But many of the barrows in Wilts and Dorset are perfectly alike in their construction and in their contents, Cremation of the body is the rule in them all; * inhumation being subordinate, though both methods of disposing of the dead were contemporaneous, being often found together. In 500 interments from the 160 Barrows alluded to in Mr. Warne's book, I have calculated that 63 per cent. were with cremation; 36 per cent. with simple inhumation.

Both Keltæ and Belgæ were conquered by Vespasian. †

But these Brythonic or Keltic tribes, when they arrived on our shores did not find an uninhabited country; it was already peopled by another, if not two other races of much higher antiquity than themselves. These were the Long-barrow folk, and the builders of the Stone monuments, monoliths, circles, and cromlechs, who, taken together may be classified as the people of our Stone Age, the Aborigines of our Island, whose origin and advent are involved in profound obscurity. Neither of these peoples, or races, seems to have existed on our shores in large numbers, for our Long-barrows are but few in the districts bordering the coast; and the remains of half a dozen Cromlechs, and as many stone circles and monoliths are all that bear testimony in our day to the existence of the latter people. We must go into the Wilds of Dartmoor, to Cornwall, Wales and Brittany to know what these stone-builders were; not forgetting, however, those grand circles at Avebury in Wiltshire, presumably Druidical temples, and the cromlechs and monoliths found there, where the land yields the requisite material without necessitating the labour of quarrying. These Stone-builders are usually denominated the Goidelic or Gaelic

*This rule does not apply to the Long-barrows, in which evidence of cremation is rare; inhumation is the rule in them.

† "Dnas Validissimas gentes... in ditionem redegit"
Suet:—

Who were they if not those mentioned in the text?

branch of the Keltic stock,—the elder branch. But I venture to contend that we are not in a position to define their racial affinity which can be done only by the scientific examination of their osseous remains. To shew our ignorance in this matter, I may mention that the late Dr. Thurnam informed me, he had seen only three skulls, which were sent to him by their discoverer the late Rev. W. C. Lukis, from cromlechs in Guernsey and Herm, and these were so fragmentary that accurate measurement was impossible, but they appeared to be "*dolichocephalous*" (the elongate type of skull). The Rev. W. C. Lukis, F.S.A., who is well known for his acquaintance with the dolmens of Brittany, has also informed me, that the data necessary for determining the skull-form are not to be found in the Museums there. The determination of this point makes an earnest appeal to Anthropological research.

But as regards the Long-barrow folk and the Brythonic Keltæ, their osteology has been submitted to anatomical examination with striking results. The former, who are denominated *Iberi*, conjecturally an Iberian race, are of the most remote antiquity and unknown origin, totally distinct from the round-barrow race in their osteological characters, and whose grave-mounds have never produced a trace of metal, and very little of any other kind of artistic fabrication. Their skeletons are of low stature, small-boned, and skulls of elongate type with well-formed features; whilst those of the Keltic are tall, big-boned, with skulls of short or broad type (*brachycephalic*) and coarse features with negro-like projecting facial angle. They are manifestly two distinct races. I imagine that their habits and customs corresponded with the differences of their respective organization, and that the former may have been a quiet, peaceful, pastoral people, whilst the latter were barbarous, fierce, and warlike—"gens aspera, audax, bellicosa"* I think I see this in the fact, that the Long-barrows are always found in or near the borders of pasture-land, and never, to my knowledge, in the Heath and Moorland, where

pasturage is scanty and difficult. On the other hand, we see the round barrows plentiful there as every where besides, denoting a people for whom the savage and predatory life of the hunter had more charms than that of the herdsman and shepherd.

The Durotriges, i.e., Keltæ, were an aggressive race. We may take it for granted that as their numbers increased and spread abroad they would gradually dispossess the Aborigines of their native lands. These being a comparatively weak race, of pastoral habits, would soon yield in the contest with a fierce and warlike people. The conquest no doubt was easy, and the Keltæ thus gradually expelled the Aboriginal tribes from the Southern districts further and still further Northwards, constructing boundary lines and barriers against them as these conquests advanced. The first note-worthy earthwork indicative of this conquest is to be seen on the Down between Whitchurch and Blandford, called Coombs Ditch. My friend the late Mr. Shipp informed me that "it may be first noticed on the Downs North of Clenstone, and it proceeds in a S.E. direction to Great Colwood, bounding it on the West side; and thence descends into the Winterborne valley, disappearing a little East of Winterborne Thompson. On the S. of Colwood it is intersected by the Via Iceniana, and appears lowered to the level of the Roman road. It consists of a single bank and ditch, the latter being on the N. and N.E. sides. It is very perfect in many parts; averages about 6 feet in height, and 12 to 24 feet broad. It has no pretension to the strength of Bockley, and could never have been intended as a defensive work alone. Its length is about six miles, and pointing in the direction, may justify the statement made by Master Feld to old Leland, "that a very long ditch runneth to Lytchett Matravers." Its construction is similar to that of Bockley, and if of inferior dimensions, it is evident that so much strength was not needed to secure the territory thus acquired by easy conquest from the Aboriginal tribes. It is certain that they did not people the district between the coast

and the river Stour in large numbers, for there are but few Long-barrows to be seen within it. The Durotriges raised this protective boundary line, and to give still greater security to their conquest they raised the strong Camps of Hod Hill and Hameldon, and Badbury, to command the principal fords of the Stour, whilst their progress was still Northwards. On the N. of the Stour, beyond Blandford, many fine examples of the Long Barrow are to be seen on the Downs, at Pimperne, Chettle, Gussage, Handley, Woodyates, indicating that those parts were numerously peopled by the Aborigines. Here the process of expulsion or extermination became, in consequence, a more difficult task; but, when at length accomplished, Bockley dyke was dug, to be a protective boundary to these territorial acquisitions, and a barrier against the predatory incursions of hostile-neighbours.

We cross this boundary, and are now in Wiltshire.

Soon after passing the village of Martin we enter on a tract of land, now partially cultivated, where we again see several Long-barrows, not of great size like the former, but with them telling the old story of Aboriginal occupation. These are seen in a triangular space, which is here three or four miles in breadth bounded on the W. by Grimsditch, and on the E. by an earthwork like it, both consisting of two low banks with an intervening ditch. The latter earthwork Sir R. Colt. Hoare was pleased to consider a branch of the Dyke.*; it certainly abuts on the Dyke on the top of Blagdon Hill, but I fail to perceive the grounds for his opinion, or any feature in common between them. Its course may be traced to the strong Keltic fortress at Whitsbury, and thence to the Avon. Both this and Grimsditch appear to me to be lines of British trackway, or roads, leading from the extensive hunting grounds, and pasture lands on this side, as well as from the important Keltic settlement on Gussage Cow Down, to the fords on the Avon at Charford and Britford, which are under the protection of the Camp on Clearbury Hill above Downton.

**Ancient Wills*, Sir R. C. Hoare.

These earthworks are most probably of later date than Bockley dyke.

Having now crossed the Avon and passed the strong oppidum of Old Sarum, which originally commanded the ancient fords of the river below, we soon enter on that magnificent Plain, or Pasture land, which extends thirty miles in almost unbroken continuity to the North of Wiltshire; an expanse of country dear to every true Archæological student. Here we find again the Long-barrow; in fact is said, "in no county of England are Long-barrows so numerous as in Wiltshire:* and here are also innumerable round-barrows of the Bronze Age; and here too are earthworks; notably that one extending between Groveley Wood and Woodsford, which Stukeley reckoned in the same category with Coombs Ditch, Bockley, and Wansdyke.† I fully accept the worthy doctor's systematic arrangement, but not the theory by which he attempts to explain it. Nevertheless I believe that the same expulsive process directed against the Aborigines, was carried on here by the Belgæ, as by the Durotriges on the other side of Bockley, forcing the Aborigines further and further towards the North, where the Belgæ raised against them that great boundary line and barrier, the Wansdyke, which runs from the border of Wilts and Berks to the Severn, and is so similar to Bockley Dyke that one might imagine the latter to have been taken for its model! We cross it; and four miles beyond its border we find ourselves in the presence of the great Circles of Avebury, with attendant Cromlechs, Monoliths, Long and Chambered Tumuli crowding around, indicative of a long period of repose and unmolested occupancy; and bearing testimony at this distant day to the high and mysterious antiquity of these Aboriginal races!—This is the territory of the Dobuni.

I might enlarge on this interesting subject, but refrain; the object I have in view being simply to suggest a theoretical

* Mr. Stevens. *Jottings*, p. 106.

† *Iter Curiosum*. *Iter VI.* and *vii.*

explanation, perhaps a novel one, of the circumstances which led to the construction of Bockley Dyke, and other allied earthworks; with some notice of the ancient people by whom they were planned and executed.

I beg to remain, Dear Sir,

Very truly yours

T. W. W. SMART.

Cranborne, June, 1884.





On *Sphaerella Taxii*.

By Professor J. BUCKMAN, F.L.S., F.G.S., &c.



DURING my residence at Bradford I have for some years observed that a certain yew tree was attacked by a minute fungus, by which the mature leaves become brown and withered, with the result that the trees look shabby, and it certainly retards their growth, and threatens great mischief to a tree always considered wonderfully free from both fungus and insect attacks. In reference to this epiphyte, I found it was first pointed out by the Hon. and Rev. E. T. Boscawen, and it is described as follows :

SPHAERELLA TAXII, *Cooke. Gard. Chronicle.*

“Epiphyllous, perithecia gregarious, occupying the whole surface of the leaves, black, slightly prominent, asci cylindrical; sporidia elliptical, apparently uniseptate when mature.”—*On Leaves of Taxus, Cornwall, Hon. and Rev. E. T. Boscawen.**

This seems to have been the result of a communication to *Grevillea* in 1878, which was perhaps the year in which Mr. Boscawen first noticed this epiphyte in Cornwall. I have noticed it for the last four or five years in Dorset, and more recently in Somerset, so that the affection is spreading, and it is probable that it will not be long before it spreads over the country.

It will be a pity if it should spread to any large extent, as it

* *Grevillea*, vol. vi., pp. 128-1878.

will make a tree dissightly, which was formerly remarkable for freedom from attacks of this kind.

As yet no remedy has been proposed for this attack, but we feel sure that raking the trees with a very fine tooth rake to get off the dead leaves, then sweeping them up carefully, will tend to mitigate the pest; this should be done as early as April before the new buds appear.

We append the following drawing with details by Mr. Cocke which has been obligingly lent to us by the editor of the *Gardener's Chronicle*.



SPHÆRELLA TAXI, FROM A YEW TREE AT BRADFORD ABBAS.

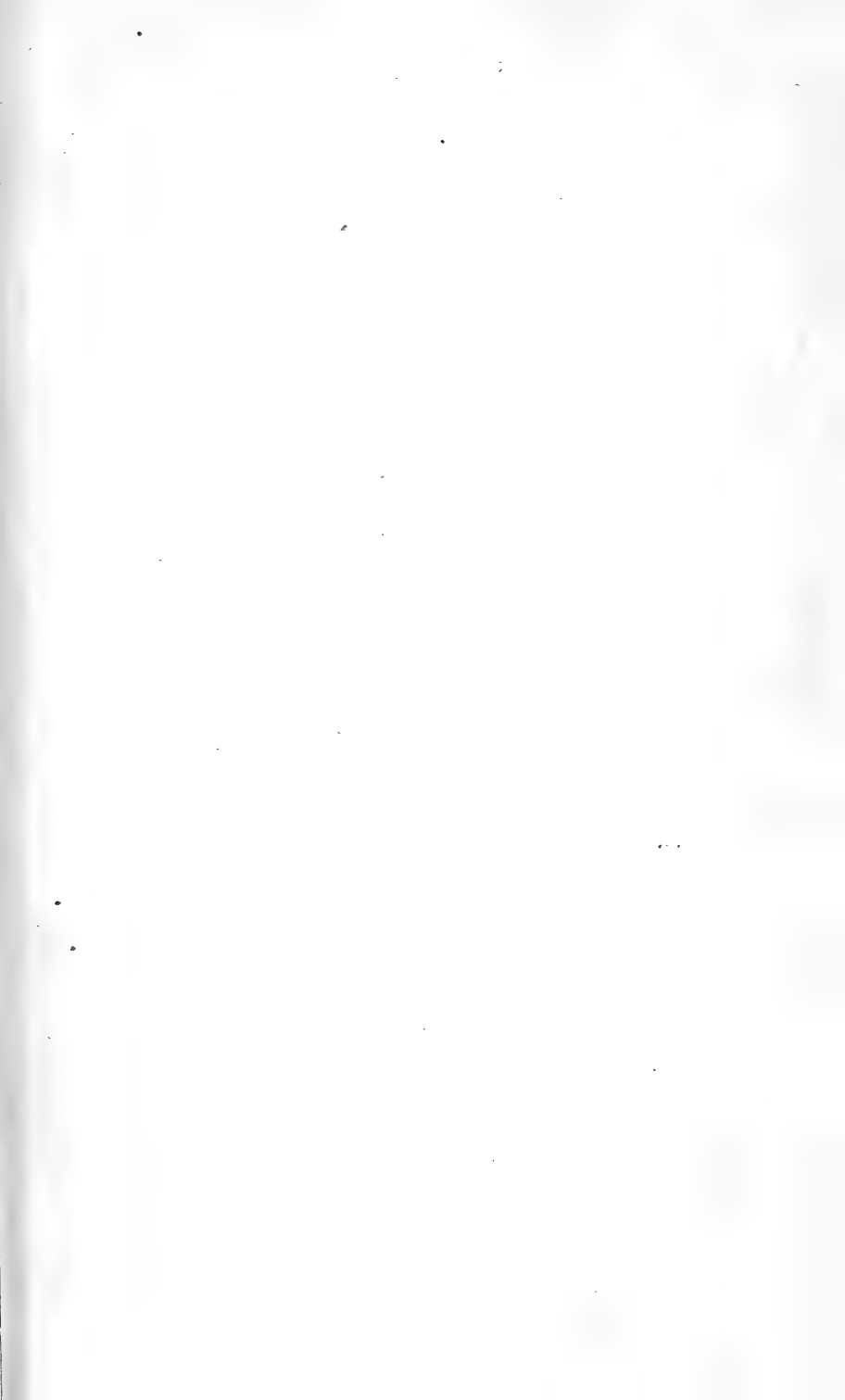
Details.—A branch of the infected tree natural size.
A portion of leaf magnified ten times.

Perithecia or blackened putale, magnified 100 times.

Sporidia, magnified 400 times.

Spores, magnified 1,000 times.







F. O. P. C. dell.

DRUIDS TEMPLE, *Powwell*.

Mintern Bros lith.



Megalithic Remains at Poxwell, Dorset.

THE DRUID'S TEMPLE, OR DRUIDICAL CIRCLE.

By the Rev. O. P. CAMBRIDGE, M.A., &c. &c.



POSSESSING little or no antiquarian knowledge, I feel that some apology is due from me to the members of our Club for bringing before them the subject of these ancient remains at Poxwell, I trust, however, that my presumption will be excused when I explain that my object is simply to ask you to accept, for insertion in some future volume of our Proceedings, a very accurate sketch made of them last summer by my nephew, Frederick O. P. Cambridge, on a visit made to the spot in company with myself. To this sketch I have also added a few notes as to the present state of the "Druids Temple" or "Circle," and a reference to what has already been published upon it. I am not aware that any pictorial sketch has ever been published on these remains, though there is an accurate ground plan in "Some Account of the Megalithic remains in South Dorset." by Mr. E. H. W. Dunkin (Reliquary Quarterly Archæological Journal and Review, January 1871) where they are described and their probable origin also fully discussed.

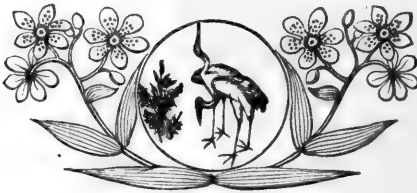
The spot on which the "Druids Temple" is seated is a very picturesque one commanding a fine view of part of Portland, Weymouth Bay, West Bay, and the Chesil Bank; and it

seemed to me that a sketch of what remains of it, in situ, would make a note on its present condition of greater interest to those of our members who may never have had an opportunity of visiting the place. It is now just 110 years ago since Hutchins in his History of Dorset, vol. I., p. 151 (1774) wrote his description of the Poxwell "Circle," which has always been known in my own family (who have been the owners of the property for many generations past) as the "Druid's Temple." Mr. Dunkin, however, is of opinion that this name (or rather the kindred one) "Druidical Circle" is inappropriate, and that it is the remains of "a Sepulchral Memorial." Of course I am unable to offer any opinion on this. Hutchins says nothing on the point; nor does he, indeed, give it any name. His description is, however, very accurate, and the whole is, for the most part, in the same state as when he wrote the History of Dorset, though the surrounding "ditch," of which he speaks, has almost disappeared, and I could not satisfactorily make out the "four pretty large stones about 200 yards distance on the N.E. and E," which he surmises may "have formed another larger circle, or an avenue to the former." It is very likely, however, that these four stones have been displaced since Hutchins' days, as there are at present several stones, partly imbedded in the turf, but still more or less visible above ground, in the same direction, though no more than from 26 to 60 yards distant from the complete circle, and not, apparently, now so situated as to give the least idea of having formed either part of a larger circle or the remains of an avenue. Mr. Dunkin only notices one (the largest) of these stones, which measures now five feet in length. I ought to mention that about half a mile or so N.E. of the "Circle," quite on the other side of the ridge, are four other large stones, from three to four feet in height (or length) lying now in confusion, having been evidently subjected to more or less recent disturbance. Neither Hutchins nor Mr. Dunkin appears to have noticed these, which possibly may have once formed part of a Cromlech. I have not attempted any detailed description of the "Druids Temple," as

that of Hutchins, which is subjoined in a note* is exceedingly accurate, and will apply to its present condition, excepting with regard to the "four stones at 200 yards distance" above noted, and the almost complete disappearance of the "ditch."

With reference to the question whether the Poxwell circle is sepulchral or sacrificial it is probable that a slight excavation of the centre, carefully made, would settle the point. Mr. Dunkin suggests this in the paper above quoted. It is believed that no such excavation has ever been made, and as it could be effected without in any way destroying the external appearance of the circle it is hoped that the owner's consent may be obtained some day to carry out this interesting and, from an antiquarian point of view, important work.

*A quarter of a mile S.E. of Poxwell House, near to the great road to Weymouth are 15 stones ranged in a circular form; one or two seem missing on the N.W. where, perhaps, was the entrance. Some of them are quite level with, and some but little above the surface of the ground; two of them, on the S.W. above two feet, and broad, some scarce a foot high. They are all extremely old, rough, and irregular, and full of holes worn by the weather. They stand on a lump, round which are the remains of a small ditch, and are four yards and a half in diameter. Eight or nine paces from this circle are three or four erect stones, which seem the remains of another circle. About 200 yards distance on the N.E. and E. are four pretty large stones which perhaps formed another larger circle, or an avenue to the former."





Geological Notes on the Isle of Portland.

By J. C. MANSEL PLEYDELL, Esq., F.G.S.



THE physical features of the Isle of Portland and neighbourhood have long attracted attention. Delabeche, Buckland, Prestwich, Cooke, Godwin-Austen, Bristow, Whittaker, Osmond Fisher, Damon, and others have laboriously worked to elucidate the phenomena of the Chesil Bank, the raised beach and drifts of the neighbourhood. In 1853 Mr. Coode, now Sir John Coode, read a paper before the Institution of Civil Engineers, in which he describes the Chesil Bank as a vast mound shingle, in the form of a narrow isthmus, lying upon the west sea-board of Dorsetshire between Abbotsbury and Portland, its general bearing or direction being south-east, and its length $10\frac{3}{4}$ miles—commencing at Abbotsbury Castle (to the westward of which the shingle slopes down from the low cliffs, as in the case of an ordinary beach), the Bank skirts along the margin of the meadows for half a mile, when it meets the Fleet or Backwater, a shallow estuary varying from half to a quarter of a mile in width; it then runs parallel to the general line of the main land as far as Wyke, a distance of eight miles; from this point the Bank takes a more southerly direction until it joins the peninsula, or what is more commonly called the Isle of Portland, when it assumes the character of an ordinary beach. The width of its base at the level of low water

of ordinary spring tides at the Portland end, was ascertained by Sir John Coode to be 200 yards, and its height 42 feet 9 inches, and at the Abbotsbury end 170 yards wide and 22 feet 9 inches high. It extends to a depth of 48 feet below high water at Portland, and only 30 feet at Abbotsbury, where the beach joins the shore; at Burton-Bradstock cliff its depth below the sea-level decreases to 21 feet, and to 9 feet at Bridport Harbour. Sir John Coode describes the Bank as composed chiefly of chalk-flints, with a small proportion of pebbles from the Red Sandstone, some are of a dull red colour others brown or dark yellow, with occasional red marks resembling blood spots; a peculiar kind of jasper pebbles, with flesh-coloured red predominating, are not very uncommon. These have been sometimes mistaken for Devonian limestone, but they do not contain any calcareous matter, as there is no effervescency on the application of muriatic acid. There are also occasionally, pebbles which are decidedly porphyritic, both green and red; these are comparatively rare, but found in sufficient numbers to prove that their presence is due to something more than accidental causes. These materials are not derived from the beds of the neighbourhood; for the rocks between Portland and Lyme Regis are Jurassic; beyond Lyme and as far as Sidmouth, beds of chalk with schists cap the new Red Sandstone cliffs, which extend westward past Budleigh Salterton, where the beach is almost entirely composed of pebbles of precisely the same kind as those of the Chesil Bank. The jasper pebbles are traced to Aylesbere, six miles inland; the pebbles of porphyry are referred to the Heavtree Conglomerates, which are either Permian or Trias, or to similar beds which crop out on the coast between Beer and Torbay. The size of the pebbles increases from Abbotsbury to Portland, where they are flat, ovoid in shape, and from three to four inches across. Sir John Coode suggests that the reason why the large shingle is always found to leeward "Is that as a rule, the large pebbles move more rapidly than the small, because more exposed to the action of the waves." Sir Charles

Lyell attributes it to the strong currents or movements of the sea during storms, when a gale from the south-west co-operates with the tide, and acts more powerfully in the open channel or the part furthest from the head of the bay, within which the land affords more shelter from the wind and waves; in other words the force of the sea increases southward, and as the direction of the Bank is from north-west to south-east, the size of the pebbles coming from the westward and thrown ashore, must always be largest where the motion of the waves and currents are most violent. In November, 1853, during a gale, the south-west wind threw in upon the Bank during one night and part of the following day, a mass of shingle amounting to no less than three and a half million of tons. Mr. Godwin Austen agrees with Sir John Coode as to the direction of the moving power being from west to east. Mr. G. H. Kinahan accounts for the arrangements and sorting of the pebbles to the flow-tide currents, and the powerful prevailing winds acting together in the same direction. As Lyme Bay is open and unobstructed, the Bank is exposed to the full force, not only of the tidal current, but also of the most prevailing and effective winds; the current also increases in velocity as it passes on eastward, carrying with it large fragments which are driven ashore and accumulated on the Bank. The inshore currents branching away from the main stream, increase in velocity from west to east, each carrying different sized pebbles, which, when thrown ashore, cause their peculiar arrangements and sorting. Professor Prestwich on the other hand considers the materials of the Bank to be derived from an ancient beach, of which the raised beach at Portland Bill is a remnant, which contains besides chalk-flint with the Devonshire pebbles, Greensand chert-pebbles, and others of Portland-stone flint, together with a few pebbles of the harder limestones and oolites of Portland. Although he does not doubt that originally, many of the pebbles are derived from Devonshire rocks, he does not consider their transport to Portland due to

existing agencies, but to causes in operation at the end of the Glacial Period, and before the land had assumed its present position and shape; when the south coast of England was fringed by a beach, remnants of which are seen in many places from the Bristol Channel to Brighton. At the present day, long lines of beach are carried away into deep waters, leaving the rock bare of sand or shingle; but the destruction of the coast-line in those days was due to causes more violent and destructive, of which I shall speak further on. Between Abbotsbury and Wyke Regis, the Bank is separated from the mainland by a narrow sea, varying in breadth from half to a quarter of a mile. Messrs. Bristow and Whittaker account for this, under the supposition that the land has been worn away by the action of streams and rivulets, flowing from north to south, leaving this narrow channel between the mainland and the Bank. Mr. Osmond Fisher, on the other hand, views "the Fleet" as the eastern half of a submerged valley, its former western side having been encroached upon and destroyed by the waves of the West Bay, previous to the accumulation of the Bank. On viewing the Bank from end to end one remarkable feature is, its regularity and form; it is a continuous grand curve from Burton Cliff to Portland, and is independent of the minor configurations of the intervening coastline. Whatever may be the cause of the previous arrangement of the pebbles of the Bank with regard to their size, both Sir John Coode and Professor Prestwich think that the Bay had been scooped out to a great depth, and the debris which could not escape from the Bay because of the direction of the prevailing winds, had formed the Bank.

I will now direct your attention to the raised beach at Portland Bill, to which I have already referred, and which has been treated exhaustively by Professor Prestwich in an important and able paper entitled "the Phenomena of the Quaternary period in the Isle of Portland and around Weymouth." I had the good fortune to accompany the Professor during his

examination of the several localities of which his paper is the subject.

The Beach is described by our fellow member, Mr. Damon, in his handbook of geology of Weymouth and the Island of Portland (1884), as "a consolidated beach or *breccia* consisting of pebbles, broken stones, gravel, comminuted shells and sand, united into one common mass by a strong calcareous cement." In 1869 Mr. Whittaker read a paper before the Geological Society on the occurrence of a deposit of shingle upon the cliffs of the south-east part of the Isle of Portland. The late Sir Charles Lyall took a part in the discussion on the paper and with intuitive perception recognised the relationship of the raised beach with the Bank, and insisted that the existence of the Bank, proving an elevation of the land must be taken into consideration in any theory as to the origin of the Bank. In 1871 Mr. Pengelly read a paper before the Devonshire Association for the Advancement of Science upon the modern and ancient beaches of Portland, in which he considered that the direction of transportation of the "raised-beach," was from west to east. Professor Prestwich's paper was read before the Geological Society in 1874. He describes the beach as resting upon a cliff of Portland rock—waterworn on the surface—three and a half feet high and surmounted by a layer of sand, one and a half feet thick; of the 28 species of shells it contains, all, with one exception are of species now living in the British Channel and are of a northern type, there being a marked absence of more southern forms. At that period the coastline was in all probability more direct from Torbay to the south end of Portland, the sea having since made great encroachments, removing the land, and with it the beaches. The old cliff and raised beach are partially covered by a land-wash consisting of loam and an angular debris, owing to a temporary submergence of land to a depth exceeding the height of Portland. and on reemergence the broken-up beds, with remains of land animals, and land and freshwater shells, protected by the

loam, became suddenly entombed and carried down to the lowest levels. Among the debris are fragments of the middle Purbecks which do not now exist *in situ* in the island. It is angular or sub-angular, and intercalated with seams of loam showing traces of rough stratification. Professor Prestwich met with another mass of rubble and loam above Chesilton. It forms a low cliff 60 feet in height and composed of angular debris of the Purbeck beds and Portland Stone, interstratified with irregular beds of loam. The mass contained a few land and freshwater shells, also two Ostracode Crustaceans, *Crypris* and *Candona*. The angular debris extends to a height of almost 200 feet and is distinct from the *talus* occasioned by the tear and wear of the existing Cliff above.*

I now come to another deposit of an age long anterior to the above; occupying a very restricted area, a little to the south of the Verne, and about 400 feet above the sea-level. It is a drift-bed of great antiquity, consisting of a red-clay or loam passing into a coarse *loess* and in some places full of angular local debris of the Purbeck beds and Portland stone, with a considerable number of small blocks of Sarsen stone of the Lower Tertiaries, much worn and stained, underlain here and there by a singular layer of pebbles, waterworn and perfectly rounded, in a mixture of sand and red-loam with a large proportion of peroxide of manganese; the pebbles were clean and bright, as if they had been artificially polished. The material was derived from the Tertiary, Chalk, Upper Green sand, and Portland beds, and possibly from some old Gravels. In the lowest part of the deposit were the following mammalian remains, a molar of *Elephas antiquus*, fragments apparently of a large molar of *Elephas primigenius*? *Equus fossilis E. spelæus*? *Bos* and *Cervus*. When the deposit was first discovered it contained a large number of teeth of elephants, but only a few of these were preserved by the Governor of the Prison, Captain

* "Quarterly Journal of the Geological Society, 1875,"

Clifton, and a few sent to the Geological Society. The red loam can be traced nearly a mile to the Old Quarry near the New Prison Church. This deposit may be referred to the High-level Platform Drifts, which often occur upon hill plateaux at considerable heights above the level of the Higher Valley Gravels and do so here and there on the opposite, range between Hardy's monument and Swanage.

This drift contains some pebbles of Chert from the Upper Greensand, and of iron stone and Sarsen-stone with chalk flints from the hills between Upwey and Dorchester, which are separated from Portland by a low plain of Jurassic beds and although at a greater distance from the Tertiaries are more freely furnished with these relics than are the more recent drifts of the intervening space.

Professor Prestwich argues that during the deposition of the Drift, there was a gradual sloping plain from the Greensand and Tertiary area to the Bill of Portland, and that at that period Portland was joined to the main land and the materials conveyed by a stream which flowed from north to south, bringing down the Greensand and Tertiary relics with which it was charged. Subsequently an anticlinal running east and west bringing up the underlying beds, as low down as the Forest Marble, between Broadway and Buckland Rippers, raised the south end of Portland as it now appears, and with it the corresponding beds at Ridgeway. The great fault in this locality however is of an older date. A simultaneous denudation of the Weymouth district took place when it was temporarily submerged and during a period of gradual emergence, with intervals of short oscillations of varied form and strength, brought down the soil charged with land shells and light materials alternating with the coarser ones. The final emergence must have been attended with some violence, probably volcanic, denuding the island of the Middle Purbeck beds, sweeping them into the sea. At Chesilton the *debris* was not carried out sea-ward but was spread out beyond the foot of the escarpment, as may be

seen at the present time. In his summary Professor Prestwich says: Carrying our view back to the latter part of the Glacial period, before the present valley system, or even some of the plains were elaborated, a broad tract of Chalk, bounded in places by Greensand and capped by Tertiary beds and other gravels ran inland, and with them the Purbeck and Portland beds were brought into level juxtaposition by and along the great line of fault running east and west, nearly midway between.

The presence of *Elephas antiquus* in the Portland mammaliferous drift brings us back to a period long anterior to the Neolithic age, which did not commence immediately at the close of the Palæolithic; but a great gap intervened between them. We find Palæolithic man feeding upon the reindeer which pastured upon the reindeer moss, the Alpine birch and willow of Central France during the cold of the second Ice age. Neolithic man did not appear until after the Mammoth had disappeared, and the cave lion and hyæna no longer wandered in our forests, and not until the Germanic flora had succeeded the Arctic, which was driven from the lowlands of Europe to the mountainous districts. I must leave this interesting subject and the consideration of the High and Low Land Valley Drifts to some future occasion when next we meet here or in the neighbourhood.





A Fossil Chelonian Reptile, from the Middle Purbecks.

PLATE II.

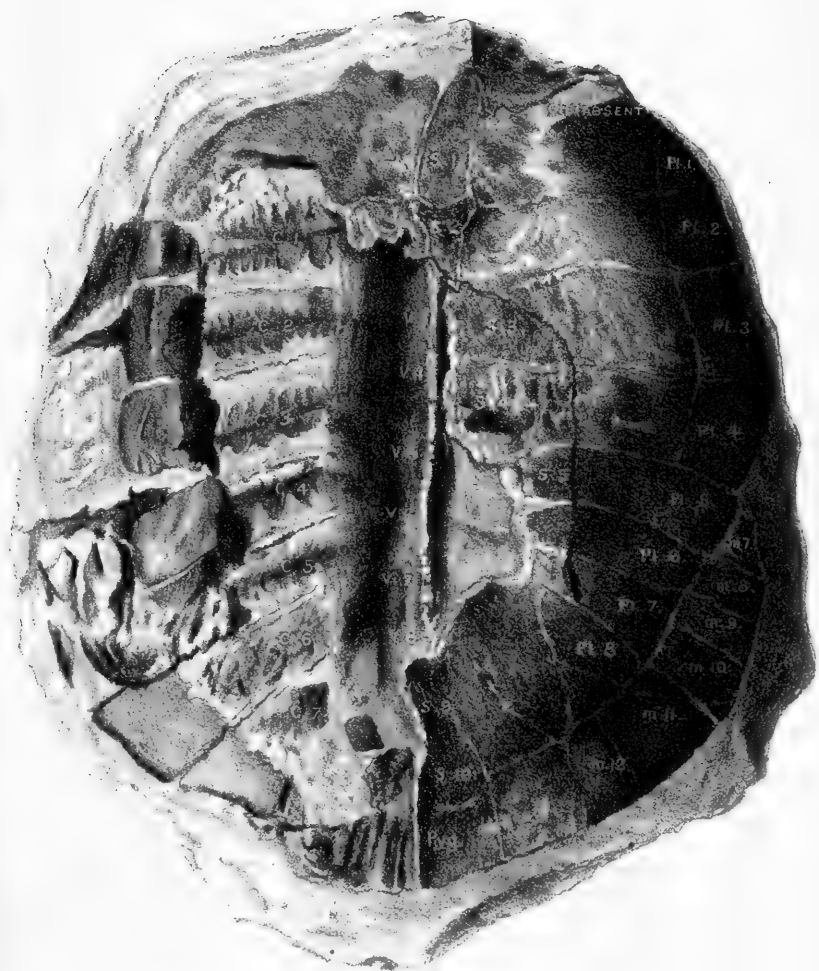
By J. C. MANSEL-PLYDELL, F.L.S., F.G.S.

PLEUROSTERNON OVATUM, *Owen.*



THE first trace of a Chelonian is supposed to occur in some footprints on the ripple-marked surface of the Bunter-Sands, accompanied by the furrows of its dragging shell; but undoubted actual remains have been found in the Lias, and right through the Jurassic series, and are abundant in the estuarine deposits of the Purbecks. There is evidence of the existence of numerous forms of Chelonians during the Cretaceous period; their remains are frequent in the Tertiaries, especially in the London clays. The Land Tortoises seem to have made their first appearance in the Miocene age; the most remarkable of which is the gigantic *Colossochelys Atlas*, which measured about twenty feet in length, and is supposed to have stood upwards of seven feet high; it comes from the Upper Miocene deposits of the Siwâlik Hills of India.

The largest living Tortoises are found in the Galapagos Islands; several gigantic species of *Testudo* formerly inhabited



PLEUROSTERNON OVATUM, *Owen.*



the islands of Mauritius and Rodriguez, but are now extinct. The Chelonian family (Tortoise and Turtle), in common with the Reptilian Order, are cold-blooded and air breathers. Like the Avian Order, the skull is articulated with the vertebral column, by a single condyle; a peculiar bone, called the *quadrate bone*, unites the lower jaw with the skull; it is fixed, and forms the greater portion of the tympanic cavity. The jaws are unarmed with teeth, their office being fulfilled by a horny cutting sheath, similar to the bill of a bird.

The shell of a Tortoise is formed by an osseous structure, covered over with an epidermal coating; the bones participating in the formation of the shell are the vertebræ, the sternum, and the ribs, the latter being so dilated that their edges form sutures with the next in succession; the humeral and pelvic bones are included within the shell. The vertebral column is free only, and moveable at its caudal and cerebral portions. The dorsal and lumbar vertebræ being useless as a support to the body, or as an attachment to the muscles, are only of a secondary importance, owing to the development of the carapace, and are much reduced, the limbs too are considerably modified. The scapular arch is three-branched, so as to admit the attachment of powerful muscles, which afford additional strength to the forelimbs, which its habits of life required. The plastron or breast-shield is composed of four pairs of bones, and a single one, the precise nature of which is uncertain; in their relation to the archetype they probably represent the sternum in part, the rest being integumentary ossifications. The carapace or upper shell consists of a series of vertebral plates, with a series of costal plates on either side, also a marginal series, which has 10 correspondence with the bones of the endoskeleton.

The Chelonian Order is divided into four groups:—

1. *Land Tortoises.* Testudinidæ.
2. *Freshwater Tortoises.* Emididæ.
3. *Freshwater Turtles.* Tryonidæ.
4. *Sea Turtles.* Chelonidæ.

Pleurosternon belongs to the second group, and is distinguished from the rest of the family by having an additional number of inferior rib elements, comprising the under-shell or plastron, also by the union of the carapace and plastron by marginal plates. The carapace is less oval than that of the marine Chelonians, approximating to the Order Testudinidæ or Land Tortoises in this respect, but differing in its slighter convexity, and being nearly flat. The individual under consideration is seventeen inches long, and fifteen inches broad.

There are five marginal plates, *m8*, *m9*, *m10*, *m11*, *m12*, and the pygal plate on the right side, portions of two *m8* and *m12*, as well as the impressions of two more on the left side. Four of the eight costal plates, *pl. 1*, *pl. 2*, *pl. 3*, and *pl. 4*, are scarcely mutilated. The fortunate removal of the marginal plates on the anterior end exhibits the beautiful symmetry of the carapace. The first neural plate, which is entire in ordinary Chelonians, is divided into two, by a transverse suture, the second neural plate, *s2*, is pentagonal, the third, fourth, and fifth, *s3*, *s4*, *s5*, are attached to the costal plates, *pl. 2*, *pl. 3*, and *pl. 4*; the fifth and tenth neural plates, *s5*, *s10*, are fragmentary; the remainder, the sixth, seventh, eighth and ninth, *s6*, *s7*, *s8* and *s9*, are wholly lost. The pygal plate is entire, and articulated to the tenth neural plate. The surface of the costal plates which are uninjured, shew the markings of the boundary lines of the epidermoid scutes, which are coincident neither with the costal nor vertebral plates; for instance the first costal plate, *pl. 1*, is impressed by the boundary lines of the second marginal scute, of the first and second vertebral scutes, and of the first costal scute, uniting with the nuchal plate *h* (which is absent), and the first and second marginal plates, *m1* and *m2*. The removal of the osseous covering of the carapace, by which nearly the whole of the left side of the endoskeleton is exposed, affords a favourable view of the vertebral column and the flattened series of ribs. The vertebræ are flattened and attenuated, and would be unsuited for the support of so massive a body, if they had not

been incorporated in the whole structure of the shell. The eight broad flattened ribs, which retain their breadth throughout, from their proximal to their distal ends, are united by longitudinal sutures, and independent of the marginal plates; this sutured union is well shewn in the specimen. The exterior surface of the carapace is granulated, and on approaching the border the granulations are substituted by a series of very fine lines at right angles to the border, and are marked strongly where the marginal plates overlap. There are no concentric impressions indicative of growth of the scutes.

This specimen is from the Middle Purbecks, of Swanage, and at present is in my possession.





On *Sypna Obsitalis*, Sübner ; a Deltoid Moth new to Britain.

PLATE III.

By the Rev. O. P. CAMBRIDGE, M.A., &c.



NE of the most interesting, and at the same time most unaccountable, experiences in entomology is the sudden or unexpected occurrence of species. Years will pass by and insects which have been long unseen, all at once without any assignable cause, put in an appearance, sometimes in great abundance, and then for many years again almost, or altogether disappear. Nearly akin to this, and quite as interesting and unaccountable, is the occurrence for the first time of a species within any well-defined geographical area. Many instances of this might be mentioned as having occurred within the memory of living Entomologists, but perhaps the most recent is that which is the subject of the present notice. Various reasons might be, and often are, suggested why the particular species may have long existed in the new locality, and have been overlooked. The locality may not have been worked by anyone likely to have noticed it; or the species may have been passed over as identical with some other one nearly allied; or the particular specimens met with may have been blown over in some abnormal gale of wind; or the eggs, or pupæ or even the perfect insect may have been accidentally or designedly introduced. All these and similar suggestions must of course be tested according to the evidence or probability in each instance; and each is of course quite possible; but after careful consideration of the cir-

Fig. 1.



Fig. 2.



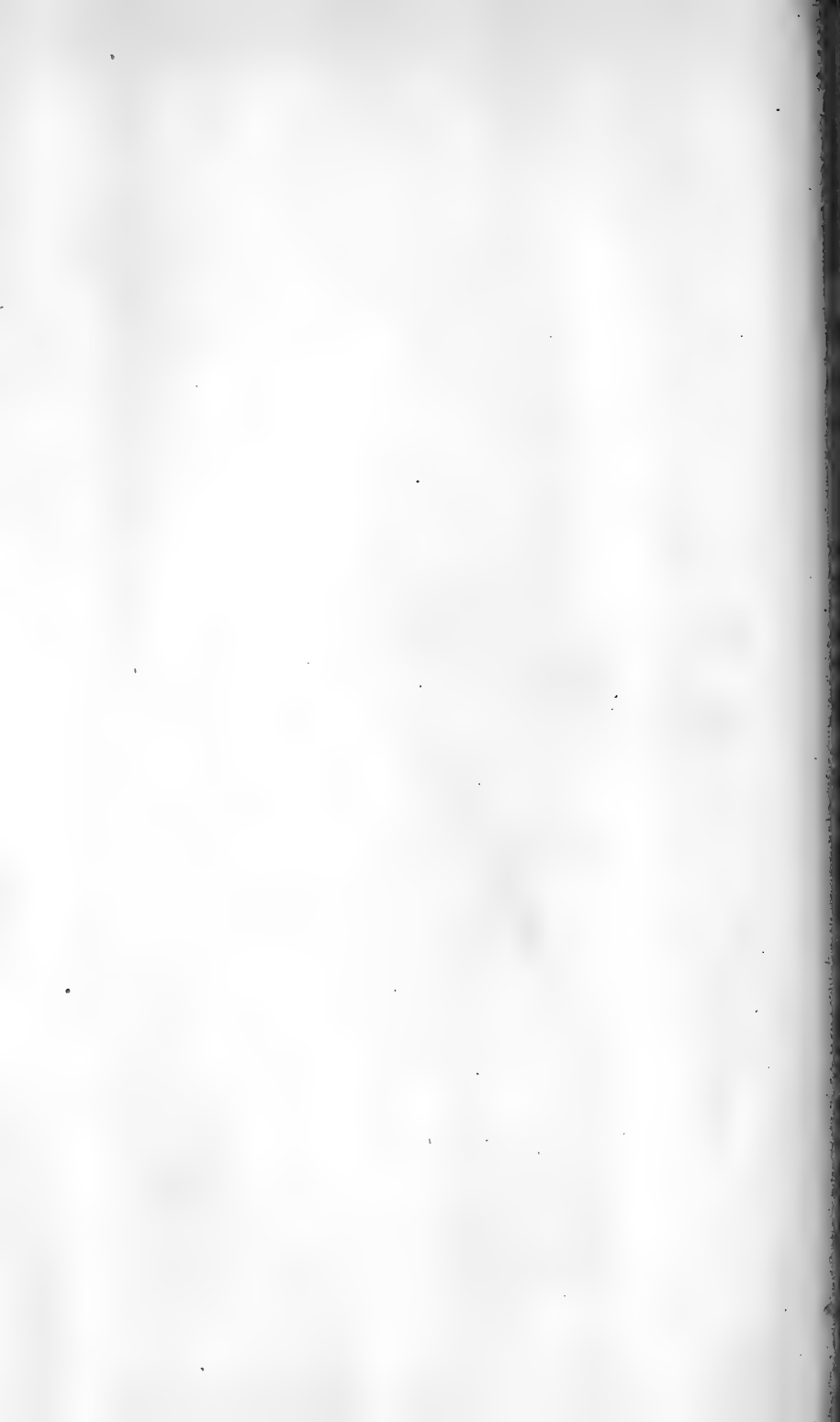
Fig. 3.



Fig. 2^a.



Hylena obstalis *Hübner*



circumstances in regard to the present occurrence of *Hypena obsitalis* it seems to me that the probability is that it has been overlooked in mistake for the newly allied *H. rostralis*, Linn. To this latter insect *H. obsitalis* bears a rather close general resemblance both in size and colouring. A notice of its occurrence appeared in the "Entomologist" for December, 1884, accompanied by a wood-cut figure; this figure is not a very characteristic one, and is made from a continental example; the species has not otherwise been before figured in any English work, it seemed, therefore, worth while accompanying the present notice with coloured figures from the British example now recorded, as well as from two other varieties from North Italy; these last have been kindly sent to my nephew, Frederick O. P. Cambridge, for this purpose by a Swiss Entomologist (Dr. Huegenin). Before describing the British specimen it will be well perhaps to note the works in which the species has been described or figured by Continental Authors. Its first notice appears to have been by Hübner (Cir. 1805) in his "LEPIDOPTERA VI.; *Pyralides* I; Tab. 25, fig. 164, 165." These figures represent a pale variety of each sex, while in Tab. 28, fig. 179, we have another strongly marked variety in which the colors are more vivid and better contrasted. No descriptions appear to have accompanied these plates. Following Hübner, Treitschke in 1829 seems to have been the first to describe the species (Die Schmetterlinge Von Europa—Siebenter Band, p. 32) in the following terms: "Alis anticis fusco, griseo, flavoque nebulosis atomis albis nigrisque, macula ad apicem dilutiore, adjacentibus punctis ocellaribus." More recently it has been described and figured by M. E. Berce (Faune Entomologique Française, Lepidoptères, vol. vi., p. 11, Pl. I., fig. 11.—1878. This author says that it "varies much, some specimens have the upper wings almost entirely brown, and with no other markings than the clear apical patch and the white points on the side; according to M. Delamain, the caterpillar resembles that of *H. proboscidalis*, Linn., except that the size is smaller, and it lives on the nettle. M. Millière finds it on *la Parietaria* [*Parietaria officinalis*] of which it joins the leaves together, and where it remains during the

day. The perfect insect is tolerably common in the south of France, but rarer in the middle, in summer and autumn, often even in December and January : (Delamain), in damp and shady places, beneath bridges, and even more frequently settled on the ceiling in the lower parts of houses."

J. H. Kaltenbach (in *Die Pflanze-Feinde aus der Classe der Insekten* 11 Abtheil, p. 531, Stuttgart, 1872) observes (under the heading of *Parietaria officinalis*) that "the Caterpillar of this Moth lives on the above plant on walls in shady places, retiring to the roots in sunshine. It is full grown at the end of May, and undergoes its transformation in a compact white web; the Moth appearing in from twelve to fifteen days."

DESCRIPTION OF *Hypena obsitalis* FROM THE BRITISH EXAMPLE.

Width 14 lines.

Upper wings rather pointed at the anterior extremity, and their outer margin slightly sinuously curved. They are of a dusky blackish brown hue, varied with black, grey, and dull clay-colour. The black markings consist of more or less distinct and irregular transverse lines, of which the main line crosses near the middle of the wing, and has a strong, angular, nose-like point directed outwards a little above the middle of the line. Near the apex of the wing (which is of a pale clay colour) are several black spots or markings, the lower ones forming one or two rather distinct longitudinal dashes. Above the nose-like point is a largish pale clay-coloured suffused patch, continued slightly downwards as a faint line, and forming a sort to margin of the main black line. The posterior angle of the wing is also somewhat suffused with clay colour. On the inner side of the "nose" is a black spot, with which are associated some pale raised scales forming a kind of ocellus; other similar raised scales are also found, in fine specimens, on other parts of the wing; but these are mostly wanting in the British specimen. Near the base of the upper wings is another rather indistinct transverse black angulated line, best marked towards the lower margin. The space between this line and that near the middle of the wing is

somewhat darker in its ground colour than the rest, and gives an idea of a slightly-defined broad transverse band or fasciæ. The outer margin is bounded by a broken black line, or lines, and the ciliæ are faintly marked with alternate brown and dull pale spots. The *posterior wings* are very slightly sinuous on their outer margin, and of a uniform smoky, black-brown hue. The *palpi* are long and rather upturned. The *antennæ* are moderately long and very slender. These parts, with the body, are of a dull, brownish-black peppered appearance.

The main varieties of this moth are formed by the greater or less distinctness of the pale, grey, and clay-coloured markings. The three figures in the Plate (fig. 1, 2, 3) represent three varieties passing gradually from the darkest, and least strongly marked to the lightest or most distinct that I have myself seen. The intermediate, though not the least distinctly marked (fig. 2), is from the British example. The other figures are from the Italian specimens. I still more distinctly marked variety is represented by Hübner (l.c., fig. 179). This species though thus very variable may be readily distinguished from its nearest (at present known) British ally (*Hypena rostralis*) not only by its more pointed upper wings, but, especially, by the strongly angulated black transverse line near the middle of each; the nose-like point (above referred to) being a strong and characteristic feature.

Entomologists should look out for the caterpillar on *Parietaria officinalis* (Pellitory of the Wall) on old walls, stony banks, and rocks, near buildings, as well as for the moth, which would probably be found in dark corners, on shady walls, in verandahs and unused rooms. I have little doubt but that it will be again found in this county if carefully looked out for, and very likely in other parts of the south of England also.

The example above described was found by myself towards the end of September, 1884, at rest on the workwork of a doorway in a shaded place in the flower-garden at Bloxworth Rectory.

The plate accompanying this paper has been kindly drawn for me by my nephew, Frederick O. P. Cambridge.



Lavatera Sylvestris.* Brot.

PLATE IV.

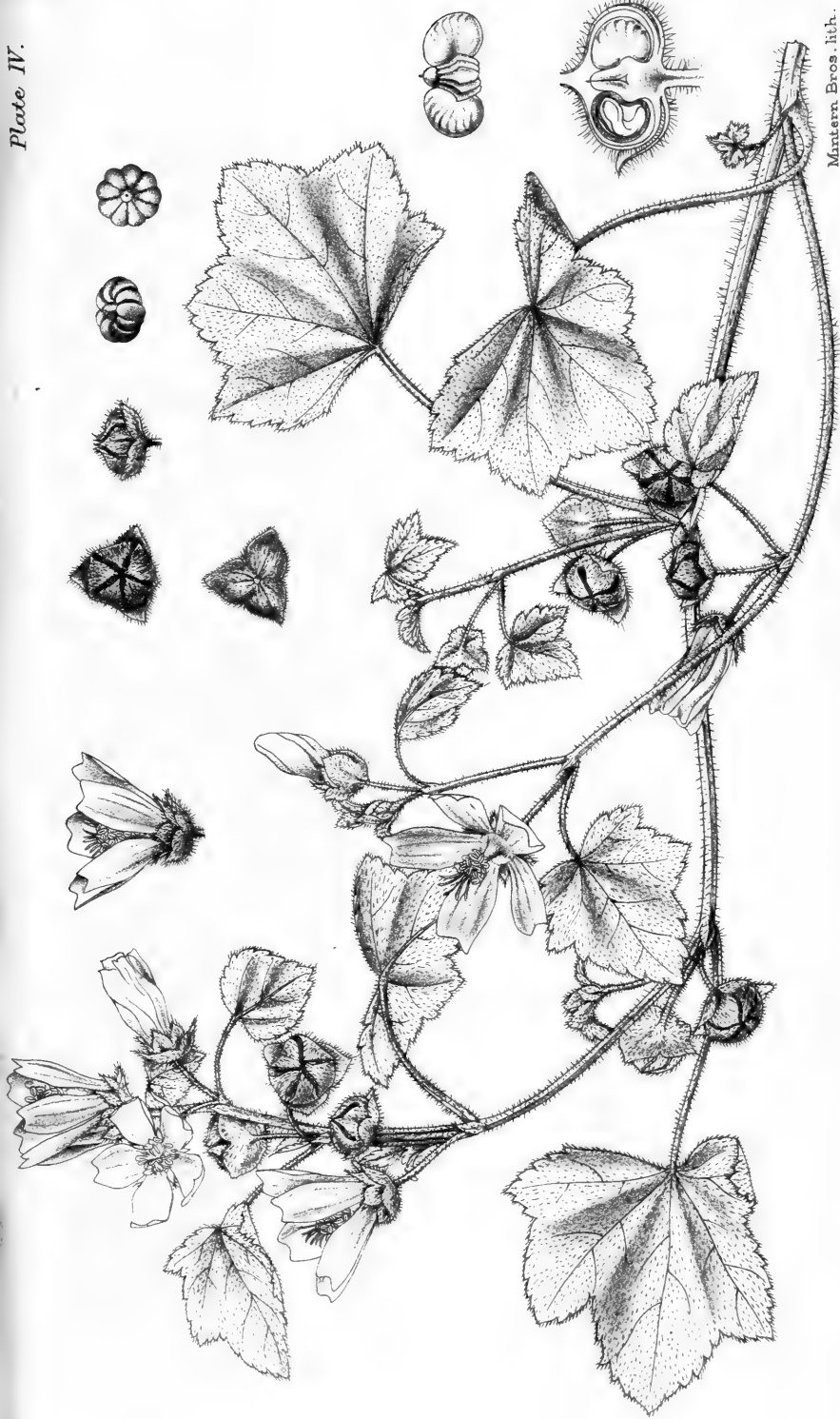
By J. C. MANSEL-PLEYDELL, F.L.S., F.G.S.



THE order Malvaceæ, to which this plant belongs, is mainly restricted to the temperate zone, being as unsuited to high as to low latitudes; Humboldt gives the proportion of 1.50 for the torrid, 1.200 for the temperate, and .00 for the glacial. The genus *Lavatera* is still more restricted, being confined to Europe and Western Asia, and there only in the neighbourhood of the sea. One species, *Lavatera aborea*, reaches as far north as Great Britain. Ray found it in the Isle of Portland as long ago as the latter end of the seventeenth century. It is now cultivated in the gardens adjoining our coast-line, probably from parent stocks which at one time clothed the cliffs before its conspicuous flowers had excited the cupidity of man, thereby resulting in its extinction in a wild state.

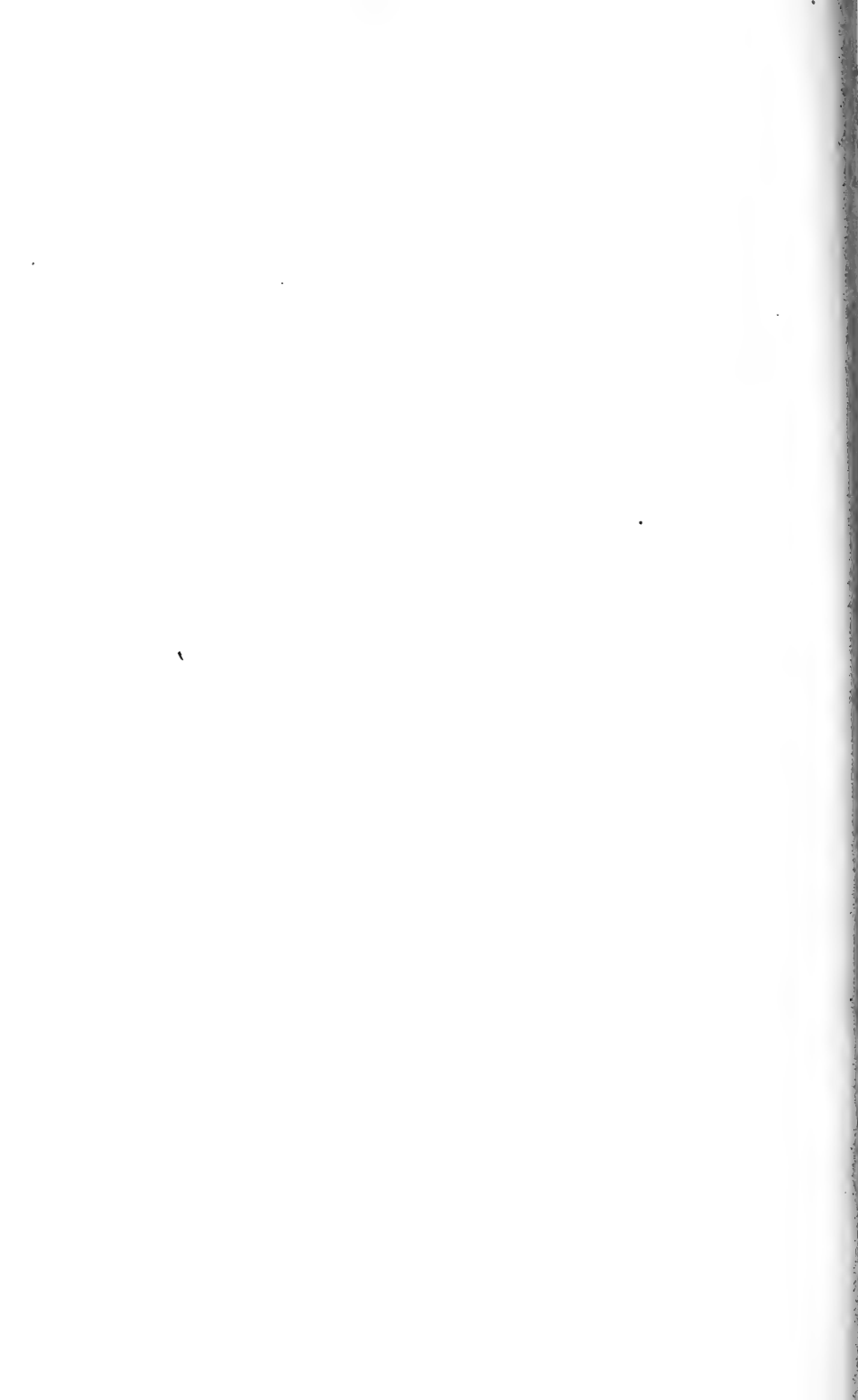
Nyman's new edition of his "Conspectus Floræ Europæ" makes no addition to the list of European *Lavateræ*, but unites *L. pallescens* with *triloba*, *L. hispida* with *olbia*, and *L. ambigua* with *thuringiaca*, thus reducing the species of the first edition from nineteen to sixteen.

* *Journal of Botany, New Ser., vol. vi., 1877.*



Mintern. Eros. lith.

LAVATERA SYLVESTRIS, Boob.



Lavatera Sylvestris is an herbaceous plant, stems ascending, lower leaves reniform, cordate, with five to seven lobes, which are blunt and serrate, attaining the dimensions of four inches in length, and three in breadth, stem leaves smaller, on shorter petioles, often truncate at the base, with three to four acute lobes, unequally dentate, and pubescent on both sides. The flowers, which are smaller than those of *Malva sylvestris*, are rose-coloured, streaked with violet, and arise from the axils of the leaves on peduncles of unequal length, and in clusters of from four to six. The five lobed hairy calyx is longer than the three lobed epicalyx, the segments of which are ovate; petals bifid; carpels smooth and pubescent, about $\frac{3}{4}$ of an inch in diameter, rounded at the back, and partly covered by the calyx segments. Besides the generic differences it may be distinguished from *Malva sylvestris*, which it much resembles, in its being Annual or Biennial, paler green, and with stellate hairs, the stipules, too, are more acute, and the flowers smaller.

Lavatera sylvestris was first observed by Mr. Curnew, of Penzance, at St. Mary, one of the Scilly Islands, in the year 1873; three years after that date it was found growing abundantly in St. Agnes and Tresco Island, at a considerable distance inland; a few plants were met with on the Cornish coast about the same period. In the autumn of 1883 I found it growing in the neighbourhood of Wareham, since then it has distributed itself considerably. Several plants of it were growing in two adjoining fields last September.

Lavatera selvestris was first fully described in 1827 in Brotero's *Phytographia Lusitanica* (vol. ii., p. 225), where it is figured. A full description will also be found in Lowe's *Manual of the Flora of Madeira*. It is a common plant throughout Portugal, is abundant in Madeira, it grows in Spain, the South-West of France, the Azores, and Magador.

I am indebted to James Britten, Esq., F.L.S., editor of the *Journal of Botany*, for kindly permitting me the use of the accompanying plate.



The Land and Freshwater Mollusca of Dorsetshire.

By J. C. MANSEL-PLYDELL, F.L.S., F.G.S.

P R E F A C E .



THE origin of the distribution of Marine mollusca can be accounted for far more easily than that of land and freshwater, as their young, both of univalves and bivalves have swimming powers, and after being drifted about by the tides and currents, can settle down, far away from their original homes ; thus the byssus-spinning mussel and pinna, the quasi-sedentary cockle or scollop, and the slow-creeping gastropod can be conveyed in their juvenile state to distant localities, favourable to adult life. The distribution of freshwater mollusca cannot be thus accounted for, since migration is debarred them as soon as the margin of the pond or lake is reached or the stream in which they sport has joined the sea, wading birds whose flights are long and distant can, with ease, transport from one place to another a mollusc, either in its egg or mature state, which has adhered to their feet or legs

when rambling among the water plants. Mr. Wallace speaks of a small shell (*Ancylus*) having been found attached to a water-beetle. Land shells may possibly be carried down by floods to the sea, and safely deposited on the neighbouring shore. Mr. Darwin shows they have a remarkable retention of life, and can survive after many days immersion by the formation of a membraneous diaphragm at the mouth of the shell. He cites a case, in which out of one hundred shells immersed for a fortnight in the sea, twenty-seven survived; drift-wood, too, will preserve the little animals in its chinks and rugosities. Young *Unios* and *Anodons* will occasionally affix themselves to the lips and fins of fish. The food of the bivalves consists principally of *Infusoria*, *Desmidiæ*, *Diatomaceæ*, &c., conveyed to them by the currents which are formed by the marginal ciliary apparatus of the mantle; *Sphærium* is sometimes found embedded in the waterlogged flesh of drowned animals. Land gasteropods are for the most part herbivorous, but some will become flesh-feeders under special circumstances. During the winter months the freshwater mollusca will bury themselves in the mud of ponds and rivers; the land mollusca, in the ground, or beneath moss or dead leaves; some will secrete a covering to the peristome, and form a false operculum, like the *Helix pomatia*; others will seal the aperture of their shells with a thin filament, as does the *Helix aspersa*.

The land and freshwater shells of Great Britain are identical with those of the Continent; the Channel separating these two portions of the same zoological province. Of the entire list of British Land and Freshwater Shells, only one is exclusively British (*Zonites excavatus*), and this Mr. Gwyn Jeffreys believes to be identical with the *Helix vitrina* of Ferussac, under its varietal form, *vitrina* (or *viridula*, of Menke), in which case every one of our British Land and Freshwater Shells are represented on the other side of the Channel.

In the arrangement, and nomenclature of the list I have followed Mr. Gwyn Jeffreys, whose valuable work, "British

Conchology," stands pre-eminent for its fulness and elaborate detail; I have also availed myself of M. Moquin-Tandon's work "*Historie Naturelle des Mollusques Terrestres et Fluviatiles de France*," of Forbes and Hanley's "*History of British Mollusca and their Shells*;" I have also consulted Draparnaud's "*Mollusques Terrestres et Fluviatiles de la France*," Dupuy's "*Mollusques Terrestres et d'eau douce qui vivent en France*," and for local references, Montagu's "*Testacea Britannica*," "*Descriptive Catalogue of the British Testacea*," by Maton and Rackett (being part of the eighth volume of the *Transactions of the Linnean Society*), and lastly Doctor Pulteney's "*Catalogue of the Shells of Dorsetshire*," published in 1799, a revised edition of which was brought out after his death, in 1813, by the Rev. Thomas Rackett, Rector of Spettisbury.

I cannot, without injustice to the memory of Doctor Pulteney, omit some reference to that distinguished naturalist. Although not a native of Dorsetshire, he adopted it for his home. He was born at Loughborough, Leicestershire, in the year 1730, and received his medical diploma in 1764. Soon after that date he settled down at Blandford, where, a favourable opening for his professional career offering itself, he soon succeeded to a good practice. In the year 1762, he was elected a Fellow of the Royal Society, and of the Linnean Society soon after its commencement. Although Doctor Pulteney was so eminent a botanist, his talents were not confined to this branch of Natural History only. He assisted Da Costa in the compilation of his *British Conchology*, and supplied him with shells from the Dorsetshire coast. He describes 35 land and freshwater shells in his "*Catalogue of Shells found on the Dorsetshire coast*;" this number is increased to 62 in the revised edition by the Rev. T. Rackett. The present list swells the number to 101, leaving only 24 British land and freshwater species unrepresented in the County of Dorset.

AQUATIC.

CLASS I.—CONCHIFERA, OR BIVALVES.

ORDER LAMELLIBRANCHIATA.

FAMILY I.—SPHÆRIIDÆ.

Genus I.—SPHÆRIUM, Scopoli.

1.—SPHÆRIUM CORNEUM, *Linn.*, pl. 5.

CYCLAS CORNEA, *F. & H.*, ii., p. 113, pl. xxxvii., 3, 4, 5, 6.

CARDIUM CORNEUM, *Pult. cat.*, p. 31; *Rack. ed.*, p. 32, pl. 7, f. 2.

Shell subglobular, nearly equilateral, thin, slightly transparent, especially towards the umbones, yellowish horn-colour, surface marked with indistinct longitudinal lines of growth, met by very fine transverse striæ, giving it a reticulated appearance; the inferior border has often a yellow band; *ligament* scarcely visible on the outside, as are the *muscular and pallial scars* inside. L.0.35. B.0.45.

Hab. Rivers, ponds, and ditches. Generally distributed.

2.—S. RIVICOLA, *Leach*, pl. 5.

CYCLAS RIVICOLA, *F. & H.*, ii., p. 111, pl. xxxvii., f. 1, 2.

CARDIUM AMNICUM, *Pult. cat.*, p. 31; *Rack. ed.*, p. 32.

Shell much inflated, suboval, nearly equilateral, solid, glossy, yellowish horn-colour, with a few deeply-ridged dark zones, marking the lines of growth; *anterior* end rounded; *posterior* end somewhat produced and truncated; *ligament* short and conspicuous; *muscular and pallial scars* fairly defined; nacreous white inside. L.0.7. B.0.9.

Hab. Slow rivers and canals. Pulteney describes this shell as not being uncommon in the Stour. Rackett considered it "a variety of *Sphærium corneum*, and not to be confounded with *Tellina amnica*."

3.—S. LACUSTRE, *Müller*, pl. 5.

CYCLAS CALICULATA, *F. & H.*, vol. ii., p. 115, pl. xxxvii., f. 7 (as *C. lacustris*).

Shell nearly globular, much inflated, compressed towards the margin, equilateral, thin, glossy and transparent; greyish ash-colour.

sometimes with some darker zones, and often with a whitish, or yellowish band, more or less marginal; *anterior* and *posterior* sides rounded, the latter rather more produced; *beaks* prominent; *ligament* short, scarcely visible from the outside; *muscular* and *pallial scars* weakly marked. L.O.3. B.O.4.

Hab. Ponds and standing water. Between Lulworth Castle gate and Arish Mill (Daniel); Holwell (H. H. Wood); Stoborough Meadows, Wareham (J.C.M.P.).

Genus II.—PISIDIUM, C. Pfeiffer.

Closely related to the preceding genus, having its siphons short and united throughout, whereas those of *Sphærium* are long and separate; the shell, too, is inequilateral.

1.—PISIDIUM AMNICUM, *Müller*, pl. 5.

TELLINA AMNICA, *Pult. cat., Reak. ed.*, p. 31, pl. vii., f. 2a.

The largest of the *Pisidia*; shell subtriangular, extremely inequilateral, opaque, glossy, horn-colour or yellowish-grey, with concentric prominent grooves, often with a pale yellow band towards the border; furrows concentric, some deeply cut; *beaks* prominent, glossy; *ligament* short, visible; inside nacreous white or bluish. L.O.3. B.O.375.

Hab. Slow rivers and ponds. In the watercourses of the meadows near Wareham (Brown), *Brit. Moll.*, vol. ii., p. 135; River Stour (Rackett); River, Chamberlayne's, Bere Regis; watercourses, West Bexington, Abbotsbury (J.C.M.P.).

2.—P. FONTINALE, *Draparnaud*, pl. 5.

Shell roundish, subtriangular, ventricose, striæ concentric, well defined, fine and regular, greyish-white, *anterior* side abruptly truncate, *posterior* side rounded and sloping towards the lower margins, which almost form a rectangle at their meeting; *beaks* prominent and rather acute; *ligament* scarcely visible; *muscular* and *pallial scars* well marked as in *P. amnicum*. L.O.15. B.O.175.

Var. 1.—Henslowana. Each valve with a plate-like appendage near the *beaks*. *P. Henslowianum*, F. and H. ii., p. 131., pl. xxxvii., f. 11.

Var. 2.—pulchella. Shell more glossy, strongly and regularly grooved; *beaks* less acute. *P. pulchellum* F. and H. ii., p. 128., pl. xxxvii., f. 12, 13.

Var. 3.—cinerea. Shell more broadly ovate and compressed, with fainter striæ. F. and H. ii., p. 125., pl. xxxvi., f. 2.

Hab. Slow streams and standing water ; it is a British Tertiary fossil. Var. 1. Holwell (Rev. H. H. Wood). Var. 2. Weymouth (Damon). Var. 3. River Stour, Spettisbury (J.C.M.P.).

3.—P. PUSILLUM, *Gmelin*, pl. 5.

Shell oval, rather ventricose, nearly equilateral, thin, with finely marked, unequal concentric striæ, yellowish white or ash-colour; *anterior* and *posterior sides* rounded, the latter being slightly more produced than the other; inferior border arched; *umbones* inflated; *beaks* blunt; *ligament* not visible from the outside; *muscular* and *pallial scars* well marked. L.0.175. B.0.2.

Hab. Ponds and ditches. Ditches, Stoborough meadows, near Wareham ; ditches adjoining the beach, between Abbotsbury and East Bexington ; watercourses, Sturminster Marshall (J.C.M.P.).

4.—P. NITIDUM, *Jenyns*, pl. 5.

Robinson's *Isle of Purbeck*, p. 178.

Shell suborbicular, ventricose, nearly equilateral, with fairly defined transverse, concentric striæ, becoming deeply grooved towards the umbonal region ; thin, very glossy and iridescent, horn-colour varying in shades ; *anterior side* rounded, *posterior side* slightly produced sloping downwards and rounded. L.0.15. B.0.15.

Hab. Lakes, ponds, and standing water. Wilkeswood quarry, Langton Matravers, and in several small ponds in the neighbourhood of Swanage (R. H. Soden Smith) ; Chapman's Pool, near Encombe (J.C.M.P.).

5.—ROSEUM, *Scholtz*, pl. 5.

Damon's *Geology of Weymouth*, p. 233.

Shell oblong ventricose, thin, very glossy, with deep, regular, concentric striæ, yellowish horn-colour ; *anterior end* truncate, sloping abruptly below ; *posterior end* elongated and rounded, lower margin nearly straight ; *beaks* prominent, obtuse and placed considerably on one side ; *ligament* inconspicuous. L.0.1. B.0.15.

Hab. Marshes, ponds, ditches, and stagnant waters.

FAMILY II.—UNIONIDÆ.

Genus I.—UNIO, *Philippsson*.

Closely allied to the marine Mussels, but differing in the structure of the foot, which is greatly developed in dimensions. All comprising this genus inhabit freshwater.

UNIO PICTORUM, *Linn.*, pl. 5.

MYA OVALIS, *Mont. Test. Brit.*, p. 34. *Pult. cat.*, p. 27. *Rack. ed.*, p. 28, pl. 12, f. 4.

Shell elongated, oval, moderately thick, greenish-yellow, with transverse, unequal, rugose, furrowed, brown-coloured zones; *anterior end* short and rounded; *posterior end* produced, and slightly truncate, upper margin nearly in a straight line; *ligament* long and straight; *beaks* incurved, placed about a quarter distance from the anterior end; *muscular scars* well defined; *pallial scars* less so; inside of shell nacreous. L.1.33. B.3.

Hab. Ponds and rivers. River Stour (H. Seymer, and Pulteney).

Genus II.—ANODONTA, *Lamarck*.

The habits of Anodonta are the same as those of the Unionidæ; but differ, according to Moquin Tandon in being ovoviviparous.

1.—ANODONTA CYGNEA, *Linn.*, pl. 5.

MYTILUS CYGNEUS, *Pult. cat.*, p. 38; *Rack. ed.*, p. 40, pl. 12, f. 2. *Brit. Conch.*, vol. i., p. 43.

Shell oblong, thin, transversely and irregularly grooved, some times deeply so, at others the grooves are scarcely visible; *beaks* straight, placed about one-fourth distance from the anterior extremity, *umbonal region* compressed; *superior border* almost horizontal; *anterior side* rounded, sloping downwards more abruptly than the *posterior side*, which is compressed above. C.2.75. B.5.35.

Var. *rostrata*.—Shell oblong oval, somewhat resembling in shape *Modiola vulgaris*; *upper margin* forming a dorsal crest, which is slightly raised and curved; *anterior side* rounded; *posterior side* attenuated, and ending in a long, curved, wedge-like point; *lower margin* nearly straight.

Hab. Slow rivers and ponds. Generally distributed. Var. Corfe river (J. Gwyn Jeffreys).

2.—A. ANATINA, *Linn.*, pl. 5.

MYTILUS ANATINUS, *Pult. cat.*, p. 38. *Rack. ed.*, p. 40, pl. 13, f. 6.

Shell smaller than the preceding, oval and compressed with transverse, well defined, irregular bands, olive-green or brown, slightly glossy; *beaks* straight, nearer the anterior end, which is rounded and gaping below; *posterior side* forming an abruptly sloping, truncate point; *hinge-line* straight or parallel to the lower margin; *ligament* short and prominent; *muscular impressions* deep. L.2.1. B.3.5.

Hab. Same as the preceding. Generally distributed.

CLASS II.—GASTEROPODA, OR UNIVALVES.

ORDER 1.—PECTINIBRANCHIATA.

FAMILY I.—NERITIDÆ.

Although this family is widely dispersed, it is represented in Great Britain by one genus, and only one species of that genus. It is herbivorous.

NERITINA, *Lamarck*.

NERITINA FLUVIATILIS, *Linn.*, pl. 6.

NERITA FLUVIATILIS, *Pult. cat.*, p. 50, *Rack. ed.*, p. 57, pl. 16, f. 17, 18.

Body yellowish-grey, speckled with black above, white below.

Shell orbicular above, the under side rather concave, solid, glossy, compressed towards the spire; brown-yellow with whitish zigzag streaks; *whorls* three, body whorl occupying more than two-thirds of the shell; *mouth* semi-lunar; *outer lip* sharp; *inner lip* flat, broad, and polished; *operculum* semi-lunar, glossy, yellow or orange colour. L.0.35. B.0.25.

Hab. Slow rivers, and lakes which are supplied with running water, or having a gravelly bed. This species ranges from Finmark to Algeria and Sicily. Generally distributed.

FAMILY II.—PALUDINIDÆ.

Genus I.—PALUDINA, *Lamarck*.

1.—PALUDINA CONTECTA, *Millet*, pl. 6.

P. LISTERI, *F. and H. iii.*, p. 1, pl. lxxi., f. 16.

HELIX VIVIPARA, *Pult. cat.*, p. 48, *Rack. ed.*, p. 54, pl. 17, f. 2.

Body dark-grey or brown, with yellow specks.

Shell conical, globulose, thin, moderately solid, glossy, semi-transparent, brown-olive colour, with three brown bands on the last whorl, which are not very distinct; also two on the two preceding whorls, there are also very fine and closely set longitudinal striæ; *whorls* seven, very convex, the last occupying about one-half of the shell; *spire* pointed; *mouth* oval, or almost circular and slightly angular above, the *outer* and *inner lips* form a complete peristome, which is purplish inside; *operculum* thin, with several unequal concentric striæ, the centre being nearest the inner lip. L.1.5. B.1.25.

Hab. Slow rivers, canals and lakes. Pulteney gives no locality, but says it is common on ponds and rivers on the Potamogeton and other plants, especially in a clayey soil.

2.—*P. VIVIPARA*, *Linn.*, pl. 6.

HELIX VIVIPARA, *F. and H.* iii., p. 11, pl. lxxi., f. 14, 15.

HELIX COMPACTILIS, *Pult. cat.*, p. 48. *Penn. Brit. Zool.* ed. iv.,
pl. 85, top fig.

Shell oval, rather ventricose, not so glossy as the last, yellowish-green, with similar bands and striæ; *whorls* six and a half, convex, the last occupying more than half of the shell; the summit of the *spire* not so sharply pointed as the otherspecies; *suture* rather deep; *mouth* oval; *outer* and *inner lips* form a complete peristome; *umbilicus* very narrow, merely a chink; *operculum* slightly concave, rather thick, glossy, marked with distinct concentric striæ; the centre nearest the inner lip. L.1.5. B.1.2.

Hab. Similar to that of the last species. This is Pulteney's *H. compactilis*, which he identifies by Pennant's figure, and is unquestionably *P. vivipara*; it is denominated by Pulteney as the Round Three-banded Snail. Rackett leaves it out in his edition of Pulteney's Catalogue.

Genus II.—*BYTHINIA (BITHINIA)*, *Gray.*

Differs from the preceding genus in being oviparous instead of ovoviviparous and the *operculum* testaceous instead of being horny; *umbilicus* small or hidden.

1.—*BYTHINIA TENTACULATA*, *Linn.*, pl. 6.

HELIX TENTACULATA, *Pult. cat.*, p. 49, *Rack.* ed., p. 56, pl. 21,
f. 12.

Body dark brown, or almost black above.

Shell sub-conical or oval, rather slender, glossy, smooth, brown amber-colour, with fine, unequal longitudinal striæ; *whorls* six, the last comprising nearly two-thirds of the whole shell, ventricose; a rib, which is sometimes white, strengthens the interior of the *outer lip* which forms a continuous peristome with the *inner lip*; *umbilicus* merely a chink; *operculum* obliquely oval, angular above, and slightly concave. L.0.5. B.0.25.

Hab. Ditches, brooks, canals, and rivers; usually attached to aquatic plants. Quaternary tufaceous deposit at Blashenwell, Kingston; Purbeck (J.C.M.P.).

2.—B. LEACHII, *Sheppard*, pl. 6.

Body greyish-white with black and yellow specks.

Shell conical, ventricose towards the base, with indistinct longitudinal striæ, thin, glossy, sub-transparent, yellowish horn-colour; *whorls* five, very convex, the last occupying about one-half of the shell; *suture* deep; *spire* bluntly pointed; *umbilicus* scarcely more than a slit; *mouth* nearly round, slightly angular above; *outer* and *inner lips* uninterrupted; *operculum* with distinct concentric striæ, the exterior of a darker hue, edges raised. L.0.25. B.0.2.

Hab. Slow rivers, ponds and watercourses. Holwell (Rev. H. H. Wood).

Genus III.—HYDROBIA, *Hartmann*.

Forms an intermediate link between *Bythinia* and *Rissoa* (marine).

1.—HYDROBIA VENTROSA, *Montagu*, pl. 6.

TURBO VENTROSUS, *Pult. cat.*, *Rack.* ed. p. 49, pl. 18, f. 12a.

Body dark grey, almost black in front.

Shell smooth, glossy, and thin, yellowish horn colour, six to seven ventricose *whorls*; *apex* pointed; *outer lip* slightly reflected; *operculum* oval, thin, and flat, resembling that of the marine genus *Littorina*. L.0.2. B.0.125.

Usually lives in ponds, and ditches into which the sea only flows at high water or spring tides. Weymouth, adhering to *Ulva lactuca*, T. Rackett; River Frome, Wareham, below Redcliff (J.C.M.P.).

2.—SIMILIS, *Draparnaud*, pl. 6.

RISSEO ANATINA, *F. and H.* ii., p. 134, pl. lxxxvii., f. 3, 4.

Body dark grey, with a yellow or brown tint and white flakey specks.

Shell oval, ventricose, rather thin, pale horn-colour, sometimes whitish, with fine longitudinal striæ; *whorls* convex, from four to five, the last occupying more than two-thirds of the shell; *spire* rather pointed; *umbilicus* a mere narrow chink; *outer lip* thin, reflected, continuous with the *inner lip*; *operculum* thin, flat, marked with irregular, flexuous lines of growth. L.0.15. B.0.1.

Hab. Muddy ditches, which are occasionally, but seldom overflowed by the sea. Watercourses adjoining the Chesil-Bank at Abbotsbury and at Bexington (J.C.M.P.).

FAMILY III.—VALVATIDÆ.

VALVATA, *Müller*.1.—VALVATA PISCINALIS, *Müller*, pl. 6.

TURBO FONTINALIS, *Pult. cat.*, p. 45, *Rack. ed.*, p. 50, pl. 18, f. 3,4.

Body yellowish grey, with small and indistinct milk-white specks.

Shell globular, conical above, solid, and opaque, brownish yellow, the surface ridged with longitudinal striæ, *spire* a reddish^r hue, *whorls* five, the last forming about half of the shell, divided by a deep suture; *mouth* circular and expanded. The *inner lip* forms with the *outer lip* a complete peristome; *umbilicus* very deep, exposing the interior of the *spire*; *operculum* somewhat depressed. the outer edges slightly overlap one another. L.0.25. B.0.275.

Hab. Canals, ponds, ditches, and slow rivers. River Frome, Wareham; river, Chamberlayne's, Bere Regis; watercourses, Sturminster Marshall; abundant. It occurs in the Quaternary tufaceous deposit at Blashenwell, Kingston, Purbeck (J.C.M.P.).

2.—V. CRISTATA, *Müller*, pl. 6.

Body dark grey or brown, slate-colour underneath.

Shell depressed, resembling *Planorbis*; flattened above, very concave below, surface with well marked longitudinal striæ, fragile, horn-colour, slightly transparent; *whorls* from three to four, the last reaching the plane of the summit; *mouth* large, circular; *suture* deep; *umbilicus* large and open, showing the interior of the *spire*; *operculum* circular, concave; the edges of each whorl, of which there are about twelve, form slight ridges. L.0.025. B.0.125.

Hab. Similar to that of *V. piscinalis*. River Frome, Redcliff, near Wareham; Stour Spettisbury; The Lidden, near Sturminster Newton; Chamberlayne's, Bere Regis. Quaternary tufaceous deposit at Blashenwell, Kingston, Purbeck (J.C.M.P.).

ORDER II.—PULMONOBRANCHIATA.

FAMILY LIMNÆIDÆ.

Genus I.—PLANORBIS, Guettard.

1.—PLANORBIS NITIDUS, Müller, pl. 6.

HELIX FONTANA, *Mont. Test. Brit.*, vol. ii., p. 462, pl. 6, f. 6,
Pult. cat., *Rack. ed.*, p. 53, pl. 19, fig. 19.

Shell slightly convex above, very thin, glossy and prismatic, pale yellowish horn-colour or whitish; *whorls* four to five, broadly overlapping one another, the last forming the greater part of the shell; *periphery* rather sharply keeled; *umbilicus* small, not deep. L.0.06. B.0.225.

Hab. Ponds, marshes, and stagnant water. Ditches about Wareham (Montagu); Chamberlayne's meadows, Bere Regis (J.C.M.P.).

2.—P. NAUTILEUS, Linn., pl. 6.

TURBO NAUTILEUS, *Pult. cat.*, *Rack. ed.*, p. 50, pl. 19, fig. 16. Robinson's *Isle of Purbeck*, p. 178.

Shell flat, very slightly concave above, convex below, thin, nearly smooth, light brown or white; *periphery* slightly and bluntly keeled; *whorls* three, the last broad and dilated, larger than the rest of the shell, with ridges often spined; *outer lip* thin, often forming a perfect peristome with the *inner lip*; *umbilicus* deep and wide. L.0.035. B.0.1.

Hab. Lakes, ponds and ditches; it is a British Tertiary fossil. Ditches, Stoborough meadows, Wareham; water courses, Sturminster Marshall (J.C.M.P.); pools, Chapman's Pool, near Encombe; Newton Manor, Swanage (Smith); Lulworth, between Castle Gate and Arish Mill (Daniel).

3.—P. ALBUS, Müller, pl. 6.

HELIX ALBA, *Pult. cat.*, *Rack. ed.*, p. 53, pl. 19, f. 18.

Shell flat above, with a shallow umbilical depression, thin whitish-grey, with very fine closely-set longitudinal striæ, which are distinct in young specimens, and scarcely perceptible in adults; *epidermis* thick, often clothed with fine bristles; *periphery* slightly compressed, having a faint trace of a keel; *whorls* five, slightly overlapping each other, and increasing rapidly, the last being the largest; *inner lip* continuous with the outer lip, which is slightly reflected. L.0.08. B.0.275.

Hab. On aquatic plants in marshes, ponds and ditches, Generally distributed.

4.—P. SPIRORBIS, *Müller*, pl. 6.

HELIX SPIRORBIS, *Pult. cat.*, *Rack. ed.*, p. 53, pl. 20, f. 17.

Shell rather concave above, flat below, fine and irregular longitudinal striæ, very thin, smooth and glossy; brown horn-colour; *periphery* angular, slightly keeled below; *whorls* five to six, the last the largest, which is slightly dilated on approaching the opening; *mouth* somewhat rounded, often strengthened inside by a rib; *inner lip* continuous with the *outer lip*; *umbilicus* large and shallow. L.0.04. B.0.25.

Hab. On plants and grass in shallow water. Generally distributed.

5.—P. VORTEX, *Linn*, pl. 6.

HELIX VORTEX, *Pult. cat.*, p. 47, *Rack. ed.*, p. 52, pl. 20, f. 12.

Shell compressed, concave above, flat below, thin, glossy, yellowish or greyish horn-colour, thin, fragile, slightly glossy and transparent, with closely set, unequal, flexuous lines of growth; *whorls* six to eight, slightly convex above, each succeeding one scarcely exceeding the other in dimensions; *suture* well marked above; *keel* well defined; *mouth* small, angular above, and like the preceding, the inside is sometimes thickened by a slight rib; *umbilicus* large and shallow. L.0.05. B.03.

Hab. Similar to that of *P. spirorbis*. River Stour, Spettisbury; river, Chamberlayne's, Bere Regis (J.C.M.P.).

6.—P. CARINATUS, *Müller*, pl. 6.

HELIX PLANATA, *Pult. cat.*, *Rack. ed.*, p. 52, pl. 20, f. 18. *Brit. Conch.*, vol. i., p. 90.

Shell concave above, slightly so below, striæ rather indistinct, very fine and arched, thin, glabrous and rather glossy, very transparent, yellowish horn-colour; *whorls* five to six, the last much the largest and dilated towards the mouth, which is oval; *periphery* sharply keeled in the centre, from which it gradually slopes both above and below; *suture* deep; *mouth* obliquely oval, rounded above and below, angulated laterally, the inside not furnished with a rib; *outer lip* continuous with the *inner lip*. L.0.1. B.0.5.

Hab. Marshes and stagnant water. River Frome, between Wareham and Stoke; Woolbridge; Chamberlayne's, Bere Regis (J.C.M.P.).

7.—*P. COMPLANATUS*, *Linn.*, pl. 6.

P. MARGINATUS, *F. and H.* iv., p. 155, pl. cxxvii., f. 1—3.

HELIX PLANORBIS, *Pult. cat.*, p. 46, *Rack. ed.*, p. 52, pl. 14, f. 8, and pl. 20, f. 10.

Shell rather concave above, and slightly convex below, smooth, slightly glossy, not so transparent as the last, yellowish horn-colour with sometimes a tinge of brown; *whorls* six, deeply divided, rounded on the upper part, convex on the lower; *periphery* with a carinated rim, which rises barely above the basal level; breadth of body whorl about a quarter of the shell; *mouth* rounded-oval, angulated laterally by the keel, the inside sometimes furnished with a rib; *umbilicus* broad and very shallow. L. 0.125. B. 0.6.

The shell of *P. complanatus* differs from that of *P. carinatus* by the whorls being more rounded, the keel placed on the lower side instead of the middle of the periphery.

Hab. Marshes, canals, ponds, and standing water. River Stour, Bryanston; Chamberlayne's meadows, Bere Regis; Stoborough meadows, Wareham (J.C.M.P.).

8.—*P. CORNEUS*, *Linn.*, pl. 6.

HELIX CORNEA, *Pult. cat.*, p. 47, *Rack. ed.*, p. 52, pl. 20, f. 13. *Mont. Test. Brit.*, p. 448.

Shell very concave above, nearly flat below, with well defined longitudinal, irregular flexuous striae, which are met at right angles by others equally fine on the surface of the first whorls, smooth, glossy, whitish horn-colour with a reddish brown tinge; *whorls* five to six, the last dilated towards the mouth, diameter of the last whorl rather less than one-third of the whole shell; *suture* deep; *mouth* very large, the upper border rather projecting; *umbilicus* shallow. L. 0.35. B. 1.

Hab. Slow streams, ponds and ditches. It is the largest of the other European species of *Planorbis*. When irritated it sends forth a quantity of red-coloured liquid. "Plentiful in some parts, though we have not found it further westward than Dorsetshire; about Wareham it is abundant" (Montagu).

9.—*P. CONTORTUS*, *Linn.*, pl. 6.

HELIX CONTORTA, *Pult. cat.*, *Rack. ed.*, p. 53, pl. 20, f. 11.

Shell slightly depressed above, concave towards the centre as well as below, dark or brown horn-colour, opaque; *whorls* from six

to eight, very compact, visible in the *umbilicus*, which is deep; *inner lip* thin, not continuous with the *outer lip*, which is not reflected, the border only slightly projecting beyond the lower. L. 0.075. B. 0.175.

Hab. On water-plants in lakes, ponds, and ditches. Watercourses, Chamberlayne's, Bere Regis; Stoborough Meadows, Wareham; Sturminster Marshall (J.C.M.P.).

Genus II.—*PHYSA*, Lamarck.

Physa forms a small and natural group with *Planorbis* and *Limnæa*, to which it is a connecting link, resembling *Planorbis*, by its long tentacles, and the position of the orifices on the left side, and *Limnæa*, by the form of the shell; but differing from both in the spire being sinistral.

1.—*PHYSA HYPNORUM*, Linn., pl. 6.

BULLA HYPNORUM, Pult. cat., Rask. ed., p. 43, pl. 18, f. 20.

Robinson's *Isle of Purbeck*, p. 178.

Shell spindle-shaped, bluntly pointed at the apex, thin, semi-transparent, glossy and polished, yellowish or reddish horn-colour, with very fine longitudinal striæ, which are scarcely perceptible even with a magnifying glass; *whorls* six to seven, slightly convex, the last surpassing the rest by half the total height of the whole shell; *suture* well marked and moderately deep; *umbilicus* covered; *outer lip* thin; *inner lip* spread upon the columella. L. 0.5. B. 0.2.

Hab. Ponds, ditches, upon aquatic plants and grass, in splashy places which are dried up in summer. Newton meadows, near Swanage; quarry, Wilkeswood farm (Smith); meadows Chamberlayne's, Bere Regis; banks of river Frome, Dorchester (J.C.M.P.).

2.—*P. FONTINALIS*, Linn., pl. 6.

BULLA FONTINALIS, Pult. cat., p. 40., Rask. cat., p. 43, pl. 21, f. 6. *Mont. Test. Brit.*, vol. 1, p. 226.

Shell oval, inflated, glossy, transparent, with longitudinal striæ, which are scarcely visible even with the aid of a magnifying glass, extremely thin and fragile. greyish horn-colour; *whorls* four or five, swollen, the last forming three-quarters of the length of the whole shell; *spire* very short, blunt; *suture* moderately deep; *outer lip* very thin; *inner lip* widely spread over the base of the penultimate whorl. L. 0.35. B. 0.25.

Hab. On aquatic plants in running brooks, as well as in slow rivers and ditches. River, Chamberlayne's, Bere Regis; Fordington meadows; Stour, Sturminster Marshall (J.C.M.P.).

Physa fontinalis, in common with some other water molluscs, such as *Limnæa glutinosa*, *L. stagnalis*, *Bythinia tentaculata*, have the power of thread-spinning for suspension. Montagu, at the beginning of this century noticed this habit in *Physa fontinalis*. He says: "*Bulla fontinalis* has a very considerable locomotive power, and transports itself, by adhering to the surface of the water with the shell downwards, against which it crawls with as much apparent ease as on a solid body; and will sometimes let itself down gradually by a thread affixed to the surface of the water."

In the *Quarterly Journal of Conchology* for November, 1878, on "Molluscan Threads," by Mr. Sheriff Tye, speaking of *Physa hypnorum*, he says: "In one case I saw three *Physæ* and a *Limnæa glabra* upon the thread of a former at one time. Often when two *Physæ* meet on the same thread they fight as only molluscs of this genus can, and the manœuvres they go through upon their fairy ladders outdo the cleverest human gymnast that ever performed. I once saw one ascending, and when it was overtaken by another, then came the tug of war. Each tried to shake the other off by repeated blows and jerks of its shell, at the same time creeping over each other's shell and body in a most excited manner. Neither being able to gain the mastery, one began to descend, followed by the other, which overtook it, reaching the bottom first."

Genus III.—LIMNÆA (LYMNEA), Bruguiere.

1.—LIMNÆA GLUTINOSA, Müller, pl. 7.

Body black or greenish grey with a yellow tinge.

Shell oval-globose, inflated, extremely thin and fragile, almost membranous, very glossy and transparent, pale horn-colour, with rather distinct, finely-marked striæ; whorls three or four, the last

enormously large, forming of itself almost the whole shell; *suture* well marked; *mouth* oval, rather suddenly contracted above, extending almost the whole length of the shell; no *umbilical slit*; *pillar lip* arched. L.O.45. B.O.45.

The animal is furnished with mantle lobes, with which when in the water it covers the shell, the mantle is yellowish speckled, with sulphury spots, and very slimy.

Hab. Ponds, lakes, and watercourses. Chamberlayne's, Bere Regis (J.C.M.P.).

2.—L. PEREGRA, Müller, pl. 7.

HELIX PUTRIS *Pult. cat., Raak. ed.*, p. 56, pl. 19, f. 30, and pl. 21, f. 13.

Body yellowish-grey, with a greenish or brown tinge, mottled with black and white specks.

Shell ovate, oblong, moderately ventricose with fine indistinct and irregular longitudinal striæ, thin, slightly glossy, yellowish horn-colour; *whorls* five, moderately convex, the last forming about five-sixths of the whole shell; *spire* pointed; *suture* well defined; *mouth* large, oval, slightly contracted above; *outer lip* reflected slightly; *inner lip* reflected and forming a slight umbilical cleft. L.O.75. B.O.425.

Var 1.—*Succineaformis*. Shell shaped like a *Succinea* and very thin; *whorls* four; *spires* small and oblique. Var. 2.—With a remarkably thickened white outer lip.

Hab. This species, so infinite in its variety of shape, is most abundantly distributed throughout the County. Var 1. Chamberlayne's, Bere Regis (J.C.M.P.). Var 2. Pond between Whitchurch and Milborne (T. Racketts).

3. L. AURICULARIA, Linn., pl. 7.

HELIX AURICULARIA, *Pult. cat.*, p. 49, *Rack. ed.*, p. 56, pl. 21, f. 17.

Body greenish brown, darker above than beneath, with bright yellow or milk-white and black specks.

Shell obliquely oval-globose, very swollen, with closely arranged unequal longitudinal striæ; thin glossy, semi-transparent, yellowish horn-colour; *whorls* four to five, convex, the last very large, forming nearly the whole of the shell; *suture* well marked; *spire* short, with a sharp point; *mouth* very large, roundish oval, usually surpassing five-sixths of the shell's entire length; *outer lip* reflected; *inner lip* forming with the *columella* a slight umbilical cleft. L.1.125 B.O.825.

Var. — *acuta*. Body of a greyish colour and closely covered with black spots. Shell smaller than the typical form, more oblong, and having the last *whorl* and *mouth* proportionably narrow, *Linnaeus acutus*, Jeffr. in Linn. Tran., xvi., p. 373. *Linnaeus auricularius*, var. *F. and H.* iv., p. 171, pl. cxxiii., f. 2.

Hab. Marshes, slow rivers, deep ditches and large ponds.
Var.—Weymouth (Damon).

Not so common as the last, but generally distributed. Mr. Gwyn Jeffreys says: "It is apt to be infested, as well as its congeners, by an annelid allied to the *Nais vermicularis* of Müller, which usually takes up its abode between the neck and mantle, and over the tentacles of the mollusc, incessantly vibrating, and apparently not parasitic but feeding on animalcules." *Brit. Conch.*, vol. 1, p. 109.

4.—L. STAGNALIS, *Linn.*, pl. 7.

HELIX STAGNALIS, *Pult. cat.*, p. 48., *Raak.* ed., p. 55, pl. 21, f. 11.

Body greenish or yellowish-grey, with brown and milky-white specks.

Shell oval-oblong, ventricose, with well marked close, irregular, flexuous, longitudinal striæ; thin, solid, glossy, semi-transparent, yellowish horn-colour or greyish-white; *whorls* seven or eight; *spire* convex, swollen in the middle, the last forming about three-fourths of the whole shell, with well marked *sutures*; *spire* produced and tapering; *mouth* large and oval, equal to half of the shell; *outer lip* expanded, slightly sinuous, depressed in the middle; *inner lip* spread out on the columella; *umbilicus* covered. L.2. B.1.

Hab. Slow rivers, ponds and marshes. Holwell (H. H. Wood); pond, Almer; watercourses, Chamberlayne's, Bere Regis; river Stour, Bryanston (J.C.M.P.).

5.—L. PALUSTRIS, *Müller*, pl. 7.

HELIX PALUSTRIS, *Pult. cat.*, p. 48, *Raak.* ed., p. 55, pl. 18., f. 18. (not good). *Brit. Conch.*, vol. i., p. 113.

Body dark grey with a tinge of violet, finely punctuated with black and yellowish-white specks.

Shell oblong, or oblong-conic, with well defined, irregular, flexuous striæ, not transparent nor glossy, transverse elevations very apparent, more so than in *L. stagnalis*; brownish horn-colour; *whorl* six to seven, moderately convex, the last occupying about two-thirds of

the shell; *sutures* well defined; *spire* tapering; *mouth* obliquely oval, forming only about one-third of the length of the shell; *outer lip* slightly expanded; *inner lip* spread on the columella. L.1. B.0.4.

Var.—*tinctoria*. Shell shorter and broader, light brown with a purplish mouth.

Hab. Marshes, ditches and ponds. Holwell (H. H. Wood.) Wilkes Wood, Langton Matravers; Stoborough meadows, Wareham (J.C.M.P.). Var. — Dorsetshire (J. Gwyn Jeffreys); Chamberlayne's, Bere Regis (J.C.M.P.).

6.—L. TRUNCATULA, Müller, pl. 7.

HELIX FOSSARIA, Pult. Cat., Rask. ed., p. 56, pl. 18, f. 17.

Body brownish-black, lighter beneath, covered with fine black specks.

Shell conic, slightly ventricose, striæ similarly arranged as the former, thin, glossy, solid, semi-transparent, pale horn-colour; *whorls* five to six, the last large, slightly swollen, forming about two-thirds of the entire shell; *spire* short and pointed; *mouth* occupying one half of the length of the shell; *suture* extremely deep; *outer lip* arcuated and projecting; *inner lip* continuous, reflects on the columella. L.0.4. B.0.2.

Var. — *minor*. Shell much smaller, thinner, and semi-transparent, dark horn-colour, marked with stronger and closer longitudinal striæ. L.0.285. B.0.165.

Hab. Banks of slow and muddy rivers, marshes, ditches and moist places; often coats its shell with mud, it is nearly amphibious, being frequently met with out of the water.

Dried river course, Whatcombe Park; marshy places, Chapman's Pool, near Encombe; ditches, Abbotsbury; Chamberlayne's, Bere Regis; river-bank, Bryanston Park (J.C.M.P.). Var.—Wilkes Wood, Swanage.

To this mollusc is attached the unenviable character of being the chief, if not the only agent, or nurse of the Liver-fluke, *Fasciola hepatica*, an Entozoa, belonging to a group of the animal kingdom whose mode of propagation is by, what is termed the *alternation of generations*, that is to say that each individual is unlike its own immediate parents and offspring, but resembles

its grandparents and grandchildren. Although its habits are aquatic, *Limnæa truncatula* can live out of the water as long as the ground is moist, and even becomes dormant in a drought, which if not of too long continuance the first storm of rain will allow it to revive. This it will be seen is a feature of some importance in the distribution of this Entozoon, which in its earlier stages can survive a prolonged immersion. Were it otherwise, and their nurses were water snails, or land snails exclusively, the disease might be more easily stamped out. The adult fluke in the sheep's liver, or that of another mammal, produces about 100,000 eggs, which pass with the bile through the intestines, and with the excrement are deposited among the grass and herbs. When hatched they enter into the mullusc, probably by boring; the embryo then undergoes certain changes and produces the germs of the next generation, which instead of becoming a *cercaria*, the form in which it had entered the sheep, an asexual embryo appears, which feeds on the tissue of the snail and in the course of a couple of months a *cercaria* is produced from the *redia*, which escaping from the snail, encysts itself on the roots of the grass, and after being taken up by the sheep in this state become developed in the adult form in the liver.

7.—GLABRA, *Müller* pl. 7.

HELIX OCTANFRACTA, *Pult. cat.*, *Rack. ed.*, p. 55, pl. 18, f. 11,
Brit. Conch., vol. i., p. 118.

Body dusky-grey, with a tinge of slate colour, and minute black specks.

Shell elongated, thin, glossy, sculptured as in the preceding species, greyish horn-colour, or brownish; *epidermis* very thin; *whorls* seven to eight, slightly convex, or moderately rounded in the middle, and of slow increase, the last moderately large, forming one half of the shell; *spire* bluntly pointed; *mouth* small, acute, oblong, angular above, about a third of the height of the shell, furnished with a white rib inside, a little distance from the border; *inner lip* expands towards the anterior extremity; *outer lip* slightly reflected. L.0.6. B.0.2.

Hab. Ditches and ponds. In a pond or gravel-pit between Lytchett and Lower Lytchett (T. Rackett). Stour, Spettisbury (J.C.M.P.).

Genus IV.—*ANCYLUS*, Geoffroy.

This genus was for some time considered as a *Patella* in miniature, and that it was branchiferous instead of pulmoniferous, as it is now ascertained to be. In 1828 Mr. Gwyn Jeffreys relegated it to the Linnæidæ, and Moquin Tandon proved it to be amphibious. The point of the spire turns to the right or left, according to the species, it is rudimentary, indicating the direction of the volutions. There are three European species, two of which are found in Britain, the other seems to be confined to Corsica.

1.—*ANCYLUS FLUVIATILIS*, Müller, pl. 7.

PATELLA LACUSTRIS, *Pult. cat.*, p. 51. *Rack. ed.*, p. 58, pl. 22, f. 8. *Brit. Conch.*, vol. 1, p. 120.

Body slate colour or dark grey with green-black specks.

Shell semi-oval, formed in the shape of an ancient helmet, with fine, regular, radiating, longitudinal striæ, which are often met transversely by others equally fine, rather thin, fragile, not glossy, yellowish grey or horn-colour; *anterior margin* rather the narrowest; *spire* acutely peaked and hooked, the slope forward being much arcuated; *spire* rather blunt and turned a little to the right; *mouth* oval. L.O.2. B.O.233.

Var. 1.—*Capuloides*. Shell larger and higher, with the beak not placed so near the posterior margin. L.O.415. B.O.3.

Var 2.—*gibbosus*. Shell smaller, more swollen, with the beak reaching or overhanging the posterior margin. *A. gibbosus*, Bourguinat in *Journ. de Conch.* iii. (1853), p. 186.

Var. 3.—*albidus*. Shell milk-white and more finely striated.

Hab. On stones and rocks in shallow rivers and streams. River Stour, Spettisbury; river, Chamberlayne's, Bere Regis; Godlingston, near Swanage (J.C.M.P). Var. 1.—River, Corfe, very rare (Gwyn Jeffreys). Var. 2.—Osmington Mills, near Ringstead (Gwyn Jeffreys). Var 3.—Arish Mill, near Lulworth (Gwyn Jeffreys).

2.—*A. LACUSTRIS* Linn. pl. 7.

ANCYLUS OBLONGUS, *F. and H.*, p. 188, pl. cxxii., f. 5.

PATELLA OBLONGA, *Pult. cat.*, p. 51. *Rack. ed.*, p. 58, pl. 18, f. 20, and pl. 22, f. 8 a.

PATELLA LACUSTRIS, *Mont.* (not Linn.). *Test. Brit.*, vol. ii., p. 484.

Shell oblong, more or less depressed, obliquely twisted to the left, smooth and thin, with very fine undulating longitudinal striæ which are met by other transverse ones equally indistinct or more

so, not ridged as in *A. fluviatilis*, greyish horn-colour; *spire* near the posterior margin, pointed and turned towards the left; *mouth* oblong. L.0.25. B.0.1.

Hab. In slow rivers, marshes and ponds, on the underside of the leaves of the water lily, and other aquatic plants, and on fallen leaves of trees. On plants in the river Stour (T. Rackett); river Stour, Spettisbury; Chamberlayne's, Bere Regis (J.C.M.P.).

TERRESTRIAL.

This section of the Pulmonobranchiate order differs from the previous one (whose aquatic habits require a branchial system of respiration) in having a pulmonary system, analogous to that of the vertebrates, also in the tentacles being *retractile* instead of *contractile* and furnished with eyes on their summits.

FAMILY I.—LIMACIDÆ.

Genus I.—ARION, Ferussac.

Shell rudimentary, a calcareous plate, not spiral, concealed under the mantle, and covering the respiratory cavity. *Head* prominent and retractile, four retractile tentacles, the two upper ones furnished with eyes. They are nocturnal in their habits, and are chiefly herbivorous. They inhabit woods, gardens, and pastures. Some of the Limaces occasionally climb trees and bushes, and suspend themselves by a glutinous thread.

1.—ARION ATER, *Linn.*

Body contracted, and rounded in front, pointed behind, varying in colour, from black, brown, red, yellow, to almost white; *shield* finely shagreened, of a lighter colour than the rest of the body; *tentacles* nearly opaque, greyish-black, swollen at the tips, more so on the lower ones; *eyes* on the summits of the upper tentacles; *foot* with a yellow border, and black cross lines; respiratory organs situated towards the anterior margin of the shield, and on the right side. L.4. B.0.5.

Hab. Woods, hedges, fields, and damp places. Generally distributed.

2.—A. HORTENSIS, *Ferussac*.

This little slug is very much smaller than the common Arion, it is nearly the same breadth throughout, and, when at rest, does not contract its body so much; the *head* is small, dusky blue colour, as well as the *tentacles*, which are short, the lower ones are of a lead-blue; the *shield* is oblong, rounded behind, granulated, usually with a dark stripe down the centre and along the margins; the rest of the back is similarly marked; *foot* grey or yellow, margin paler; *tail* lanceolate and obtusely pointed.

Shell of an irregular shape, composed of grains, cemented together by a calcareous matrix.

Hab. Gardens and fields. Generally distributed.

Genus III.—LIMAX, *Linn.*1.—LIMAX GAGATES, *Draparnaud*.

F. and H. iv., p. 24, pl. D.D.D., fig. 3.

Body elongate-lanceolate, tapering towards the tail, glossy, dark-red or even black above, and yellowish-grey below; *head* rather large, bluish grey, with darker tentacles; *shield* oblong, obtuse, subtruncate at both extremities, granulated on the surface, often darker than the body, it is finely shagreened or granulated; *respiratory orifice* near the centre of the margin; *tentacles* very short, and thick, not much swollen at their tips; *back* sharply keeled its whole length, bordered with white or a paler colour than the rest of the body; *slime* nearly colourless. L.2.5. B.0.35.

Shell small in proportion to the bulk of the shield, oval, irregularly convex.

Hab. Hedges, at the roots of grass, and the foot of old walls. Under a stone at the foot of a thorn hedge, Portland, September, 1857 (Mr. Darbyshire).

2.—L. MARGINATUS, *Müller*.

L. SOWERBI, *F. and H.*, iv., p. 22, pl. E.E.E., f. 3.

Body nearly cylindrical, and slightly enlarged in front, terminating gradually to a point behind, reddish-brown, speckled with black, rugose, on the back and tail; *shield* large, elongate oval, reaching downwards to the sides, which are furnished with a dark band, and occasionally one on the back, which has a prominent keel, extending from the hinder edge of the shield to the tail; *tentacles* distant, thick. L.2.5. B.0.35.

Shell oval, with conspicuous lines of growth; nucleus near one end, prominent. L.0.2 B.0.125.

Hab. Under stones, among dead leaves, and at the foot of old walls. Generally distributed.

3.—*L. FLAVUS*, *Linn.*

Body slightly contracted in front, rather broad in the middle, tapering gradually to a point behind, colour of the back ash-grey, with numerous pale-yellow spots; *shield* oval-oblong, finely wrinkled concentrically and transversely, truncate in front, subtruncate or rounded behind; *respiratory orifice* postero-lateral; *foot* white; *margins* yellowish-white; *slime* yellow. L.4. B.0.75.

Shell obliquely oval or quadrangular, rather concave on the under side, thin, crystalline, and nacrous, with distinct lines of growth. L.0.3. B.0.125.

Hab. Cellars, damp places, moist woods. Generally distributed.

4.—*L. AGRESTIS*, *Linn.*

This most abundant and voracious slug is small, has an appetite quite disproportionate to its size. Body spindle-shaped, ash-grey, or reddish, indistinctly speckled with brown, two dark lines run from the head, to the upper *tentacles* which are short; *mantle* large; back rounded, keeled obliquely towards the acute tail, surface reticulated with depressed, smooth wrinkles; *shield* slightly emarginate in front, truncate behind; *foot* white, *margins* the same. L.1.5. B.0.4.

Shell obliquely oval, concave on the underside, rather thin, with indistinct lines of growth, and marked obliquely by exceedingly minute striæ which cross each other, nucleus very small, slightly projecting behind on one side. L.0.2. B.0.1.

Hab. Fields, gardens, and woods. Generally distributed.

Moquin-Tandon says: "This slug lays from 25 to 70 eggs at a time, and that between the months of April and November, it lays no less than as many as 200. The eggs are hatched from the seventeenth to the twentieth day; the young attain their full developement within less than three months."

5.—*L. ARBORUM*, *Bouchard-Chantereaux.*

Body rather slender, gelatinous, sea-green, or bluish-grey, with irregular yellowish-white spots of various sizes; *back* wrinkled; when the animal is extended the wrinkles form longitudinal lines, darker

than the rest of the body; *tentacles* short, yellowish-grey, sharply and wavyly keeled towards the tail; *shield* rounded in front, and shortly pointed behind; *foot* and margins white; *slime* colourless. When young, *Limax arborum* frequently descends from the branches of trees by means of mucous threads. L.3. B.0.4.

Shell oval, rather thin, slightly raised above with marks of lines of growth, white and iridescent, flat beneath, and covered with small tubercles; nucleus nearly inconspicuous and subterminal. L.0.2. B.0.125.

Hab. Trees, especially the old and decayed, burrowing in the bark, often to be seen thus when the trees have been felled and lying on the ground. East Lulworth (Kendall); Clenston Wood (J.C.M.P.).

6.—*L. MAXIMUS*, *Linn.*

Body slender, yellowish-grey, sometimes quite black, occasionally with streaks or spots of black; *shield* oblong, tumid, somewhat pointed behind, striæ distinct and regular; *tentacles* swollen at the base and nearly joining, long, slightly conic, sub-transparent; *eyes* not placed quite at the summit of the tentacles, but slightly at the exterior side; three distinct dorsal furrows, the median very narrow, the two others rather broader, brownish-black; *foot* and margins white; *slime* colourless. L.4.5. B.75.

Shell square-oval, fragile, rather convex above, white, marked with rather prominent lines of growth, obliquely striate; nucleus very small, placed near one end. L.0.5. B.0.325.

Hab. Woods, gardens, hedges, under old logs of wood. Generally distributed.

7.—*L. BRUNNEUS*, *Bouchard Chantereaux.*

F. and H., iv. p. 20., pl. F.F.F., fig. 4.

M. Moquin Tandon includes this species among his doubtful species; Mr. Gwyn Jeffreys regards it as a variety of *L. agrestis*. It is smaller than the type (scarcely more than an inch in length when in extension), and of a uniform brown colour. It is local, but probably widely distributed. Wool (Kendall).

FAMILY II.—TESTACELLIDÆ.

TESTACELLA, *Cuvier.*

The genus *Testacella* is intermediate between the slug and the snail, differing from either in the absence of a shield, and in the position of the respiratory organs, as well as of the liver

and heart, which are placed in the tail region instead of the anterior part of the body. This provision affords the outer air free access to the lungs when the animal is in pursuit of its prey through the narrow subterranean channels of the earth-worm, which is its principal food. These delicate organs are protected by a small shell, flattened and lying nearly parallel to the axis of the body, so as to interfere as little as possible with the free movements of the animal in its underground progress.

The head is small, with two large and two small tentacles; its large mouth is furnished with several rows of recurved teeth; the jaws are enormously strengthened by a powerful muscle which extends through the whole length of the body, and is attached to the left posterior side by several fleshy attachments; the lips have the power of protrusion, so as to give them the appearance of tentacles.

1.—TESTACELLA HALIOTIDEA, *Draparnaud*.

Body contracted towards the front, and somewhat pointed at the head; smaller in the middle, thicker and rounded behind, capable of extending itself as long as five inches; the *skin* is tough and thick, more so than the *Arions* and *Limaces*. Two longitudinal grooves commencing at the anterior border of the shell and extending to the neck, enclose the greater portion of the back, which is furrowed longitudinally and obliquely by smaller and shallower grooves. Near the head these are replaced by rugosities, which become indistinct when the body is extended. The colour of the body is reddish-brown, more or less spotted with red, black, and white; mantle very small, scarcely exceeding the shell; *tentacles*, short in proportion to the *Arions* and *Limaces*, the upper are slightly swollen at the extremities; colour similar to the rest of the body; *eyes* placed near the upper extremity, and slightly on the exterior side. L.3. B.0.4.

Shell oblong, ear-shaped and compressed, especially in the middle, and front margin: contracted towards its posterior end, which is curved backward with a slight projection, invisible when viewed from above; colour dirty white, opaque, with an epidermal covering with several successive concentric lines of growth; the *anterior* is smooth and glossy; *mouth* exceedingly large, the *anterior margin* rounded, the *posterior* obliquely truncate. L.0.25. B.0.15.

Gardens, Down House, Blandford (Sir W. Smith-Marriott).

Stalbridge, *Science Gossip*, 1877, p. 209.

2.—*T. MAUGEL, Ferussac.*

Resembles the above species in many respects, the two principal longitudinal grooves are similar, but the secondaries not being oblique the interspaces are rhomboidal. The upper portion of the body is more rugose, which is seen to advantage when the animal is at rest and not extended, mottled-brown on a red or whitish ground, individuals differ materially in this respect; the *ventral front* is bright orange-colour and occupies quite half of the body. The mottled spots, which extend over a large portion of it, give it the appearance of a pattern. The *tentacles* are thin and slender, not swollen at the extremity. The *eyes* occupy the same position as those of the other species, but are less distinct. The colour of the tentacles differs in individuals, dark in some, and nearly white in others. L.25. B.0.4.

Shell more convex than *T. haliotidea*, relatively longer and narrower; the spiral point and anterior margin are less conformable to the median line, and lie more obliquely. The concentric striæ of growth differ in individuals of this species; in some cases they are roughly raised, in others they are almost smooth; the interior is smooth and glossy. L.0.27. B.0.14.

This species was first discovered in 1801, near Teneriffe, by M. Mangé; about 40 years afterwards it was found at Bristol, since then in other parts of Somersetshire, also at Plymouth, Cork, Swansea and Jersey.

It appears to be indigenous to Madeira, the Canary Islands, Portugal, and the South-west of France.

Rectory Gardens, Corfe Castle (Eustace Banks).

FAMILY III.—HELICIDÆ.

The different species of this family are very numerous; it is calculated that more than two thousand are distributed throughout the world, and found under every condition of climate, from the summit of snowy mountains, to the scorched deserts of tropical lands; some prefer moist dank places, others dry, and in full sun-glare. Pfeiffer described no less than 1149 species of the typical genus *Helix* in 1848.

Mr. Gwyn Jeffreys gives the following table, in which the family may be divided:—

1. Succinea. Shell oval, usually not quite covered by the body.
2. Vitrina. 3. Zonites. Shell globular or round, glossy, sometimes covered in part by a lobe or expansion of the mantle.
4. Helix. Shell shaped like the last, but not glossy, nor any part of it covered by the mantle.

5. *Bulimus*. 6. *Pupa*. 7. *Vertigo*. 8. *Balia*. 9. *Clausilia*. Shell cylindrical; *mouth* often furnished inside with teeth, and in one genus also with a moveable plate.

10. *Cochlicopa*. 11. *Achatina*. Shell shaped like the last; *mouth* more or less notched at the base, and sometimes also toothed.

Genus I.—*SUCCINEA*, *Draparnaud*.

1.—*SUCCINEA PUTRIS*, *Linn.* pl. 7.

HELIX PUTRIS, *Rack* ed., p. 59, pl. 18, f. 19.

HELIX LIMOSA, *Pult. cat.*, p. 48.

Body oblong and slightly thick, reddish-yellow above, paler below.

Shell oval-oblong, fragile, very transparent, thin, striæ extremely fine, amber-colour; *whorls* three to four, the last forming about four-fifths of the shell; *spire* very short and obtuse; *mouth* oval, large, being about two-thirds of the shell's length; *outer lip* contracted above. L.0.6. B.0.3.

Hab. On the stems and leaves of water; and bog-plants, on muddy and moist places. Generally distributed.

2.—*S. ELEGANS*, *Risso*, pl. 7.

S. PUTRIS, var., *F. & H.* iv., p. 135, pl. cxxxii, f. 1—3.

Body large in comparison to the shell, rounded anteriorly and posteriorly, yellowish brown, sometimes black.

Shell oblong, slightly solid, and scarcely transparent, dark amber-colour, very finely striated; *whorls* three to four, the last very large, generally paler, and slightly nacreous within; *mouth* oval, forming nearly two-thirds of the shell. L.0.6. B.0.25.

Hab. Similar situations as *S. putris*, and as extensively distributed.

Genus II.—*VITRINA*, *Draparnaud*.

VITRINA PELLUCIDA *Müller*, pl. 7.

Body rather slender, large in proportion to the size of the shell which is grey with a reddish tinge.

Shell subglobular, very thin and fragile, with scarcely perceptible spiral, close-set striæ, semi-transparent and glossy; *whorls* three to four, convex, the last occupying more than two-thirds of the shell; *spire* extremely short; *mouth* nearly round, sloping slightly, where it is met by the penultimate whorl. L.0.125. B.0.25.

Hab. Among moss, under stones, and on decaying timber. Generally distributed.

Genus III.—ZONITES, *De Montfort*.1.—ZONITES CELLARIUS, *Müller*, pl. 7.

HELIX LUCIDA, *Pult. cat.*, p. 47?

HELIX NITENS, *Rack. ed.*, p. 54, pl. 19, f. 22, in part.

Body obtusely rounded before, and insensibly narrowing behind, excepting at the neck, covered with very minute, flat, closely-set tubercles, slate-colour above, with a yellowish tinge beneath.

Shell compressed, slightly convex above and below with very fine unequal longitudinal stræ, very thin, brittle, transparent and glossy, yellowish or brownish horn-colour above, whitish with often a greenish tinge underneath; *whorls* five to six, gradually increasing in size, the last occupying about one-half of the shell; *spire* nearly flat; *umbilicus* broad and deep, exposing nearly all the interior of the shell. L.0.2. B.0.5.

Hab. In cellars, vaults, damp places in houses, under stones, in drains and among grass. Generally distributed.

9.—Z. ALLIARIUS, *Müller*, pl. 7.

Body resembling that of the preceding; but much darker, and the tentacles shorter.

Shell depressed, slightly convex above, flat beneath, marked with very indistinct spiral and fine lines, thin, very glossy, transparent horn-colour above, and not so white beneath as *Z. cellarius*; *suture* moderately deep; *mouth* narrow; *outer lip* sharp, slightly reflected near the pillar; *umbilicus* deep.

Hab. Under stones, gardens, on uplands and sand-hills. Generally distributed.

Zonites alliarius is able to emit a strong smell of garlic, which is more powerful when plunged in boiling water.

3.—Z. NITIDULUS, *Draparnaud*, pl. 7.

Body dark-grey or slate-colour, with a brownish tinge.

Shell compressed, sub-globular, convex above, more so than below with fine spiral stræ, thin, moderately glossy, scarcely semi-transparent, brown or yellowish horn-colour above, whitish underneath, with a bluish tinge, especially about the umbilicus; *whorls* four to five, convex, increasing very gradually, the last the largest, dilated towards the mouth, which is round, except where it is interrupted by the penultimate whorl; *umbilicus* very deep and broad, exposing the interior. L.0.15. B.0.33.

Hab. In woods, under stones, among dead leaves and moss; Wilkes Wood, near Swanage (J.C.M.P.).

4.—*Z. PURUS*, *Alder*, pl. 7.

Body yellowish-grey or whitish, very finely punctuated with black spots.

Shell compressed, rather more convex above than below, very thin and fragile, transparent, not glossy, light horn-colour or reddish, tending sometimes to greenish, exquisitely sculptured transversely by numerous curved striæ above, and spirally by still finer ones; *whorls* four, the last occupying scarcely one-half of the shell; *umbilicus* deep, exposing the interior. L.0.075. B.0.15.

Hab. Among dead leaves and moss in woods. Houghton Wood; Morden Park (J.C.M.P.). Creech Grange Woods.

5.—*Z. RADIATULUS*, *Alder*, pl. 7.

Brit. Conch., vol. i., p. 166; Robinson's *Purbeck*, p. 177.

Body dark, tentacles nearly black.

Shell compressed, convex on both sides, very thin, fragile and glossy, semi-transparent, dark horn-colour, paler underneath, upper part beautifully marked with delicate, close-set, longitudinal striæ, which reach the suture; *whorls* four-and-a-half, the last occupying rather less than one-half of the shell; *suture* moderately deep; *umbilicus* narrow and deep, exposing the interior of the spire. L.0.075. B.0.15.

Hab. Under stones and among moss in woods. Dorset (Gwyn Jeffreys); in a lane near Godlingston, Swanage (Smith); under moss, Whatcombe Park (J.C.M.P.).

6.—*Z. NITIDUS*, *Müller*, pl. 7.

Body very small, strongly truncate in front, covered with large round flat tubercles; black or bluish-black.

Shell depressed, semi-globular, convex above, flat and concave towards the centre beneath; thin, fragile, slightly transparent, smooth, shining; *whorls* five, the last occupying about one-half of the shell; *suture* well marked; *spire* somewhat prominent and blunt; *umbilicus* large, showing the interior. L.0.1. B.0.275.

Hab. Under stones, roots of grass, on mud in moist places. Water-carriers in meadows adjoining the river Bredy, Puncknoll; watercourses Chamberlayne's, Bere Regis (J.C.M.P.).

7.—Z. EXCAVATUS, *Bean*, pl. 7.

Body slender, greyish-white, with three or four raised lines along the neck.

Shell small, rather depressed, more convex on the upper than the lower side, thin, transparent, light-brown or tawny, strongly and deeply striate in the line of growth; *whorls* five and a half; *umbilicus* broad and deep, exposing all the internal spire. L.O.085. B.O.225.

Hab. Under fallen trees, and among dead leaves and moss in shady woods; East Lulworth (Kendall).

Var. *vitrina*. Shell greenish-white, transparent.

Although it has not been noticed out of Britain, Mr. Gwyn Jeffreys believes "that the greenish-white variety is the *Helix vitrina* of Ferussac, as well as the *H. viridula* of Menke, *H. petronella* of Charpentier, and probably also the *H. clara* of Held."

8.—Z. CRYSTALLINUS, *Müller*, pl. 7.

Body greyish-white; *tentacles* short.

Shell depressed, very slightly convex above, almost flat beneath, thin, fragile, pellucid white, sometimes with a greenish tinge, with fine and equal longitudinal striæ, which are almost imperceptible even with the aid of a magnifying glass; *whorls* four and a half to five, slightly convex gradually enlarging, the last more so than the others; *spire* scarcely raised; *suture* very slight; *umbilicus* small and narrow, scarcely exposing the interior. L.O.065. B.O.125.

Hab. Under stones, and among moss, in woods and damp places. Houghton Wood (J.C.M.P.). Stoborough; Creech Grange.

9.—Z. FULVUS, *Müller*, pl. 7.

ROBINSON'S *Purbeck*, p. 178.

Body, greyish-black, or slate-colour with very fine black specks.

Shell pyramidal, nearly flat beneath, horn-colour, or tawny, thin, slightly transparent, smooth, glossy, with very fine irregular striæ; *whorls* five-and-a-half, enlarging gradually, the last obtusely keeled; *suture* well marked; *spire* very obtuse; *mouth* compressed and

narrow; *outer lip* curved and reflected on the pillar; *umbilicus* indistinct. L.O.I. B.O.I.

Hab. Among moss, under stones and decayed timber in woods and shady places; Wilkeswood Farm, Langton Matravers (Smith); among moss, Whatcombe Park; Houghton Wood (J.C.M.P.).

Genus IV.—*HELIX*, Linn.

Body rather long, capable of being contained within the shell; mantle thick, slightly bilobed on the under side; tentacles four, cylindrical, enlarged at their summits; foot elliptical.

Shell globular, or subcompressed, rarely flat; *spire* generally short, the last whorl more or less the largest; *mouth* forming an oblique segment of a circle, rarely round or triangular; *outer lip* thin or thick, sometimes strengthened by a rib, or reflected; *umbilicus* usually distinct and more or less open, but in a few species quite closed or wanting, except in the young state.

I.—*HELIX ACULEATA*, Linn., pl. 8.

HELIX SPINULOSA, Pult. cat., Rack. ed., p. 54, pl. 19, fig. 23.
Robinson's Purbeck, p. 178.

Body thick and short, narrowing at both extremities, more rounded in front, where it has a brownish tint, the rest of the body greyish slate-colour.

Shell globose-pyramidal, slightly convex beneath, with oblique projecting plaits, which rise in the middle of each whorl, terminating in a compressed hooked point, thin, not glossy, transparent, horn-colour; *whorls* four to four-and-a-half, convex, gradually increasing; *spire* obtuse; *suture* deep; *mouth* forming a deep arch; *outer lip* slightly thickened, with a white rib and reflected in adult specimens; *inner lip* slightly reflected over the *umbilicus*, which is narrow and small. L.O.I. B.O.I.

Hab. Among dead leaves and moss in woods; Spettisbury, Rev. T. Rackett; Marble Quarry, Wilkeswood Farm, Leeson Wood, Langton Matravers (Smith); East Lulworth (Kendall).

2.—*H. POMATIA*, Linn., pl. 7., pl. 9.

Pult cat., p. 47., Rack. ed., p. 54, pl. 20, f. 14, *Cochlea pomatia*, Da Costa, Brit. Conch., p. 67, pl. 4, fig. 14.

Body obtusely rounded in front, terminating behind in rather a sharp point, yellowish-grey, sometimes with a greenish tinge, covered with large contiguous, prominent tubercles, principally in the region of the neck.

Shell globular, thick, solid, opaque, reddish, or dirty yellow, with four or five brown spiral, rather indistinct bands on the body whorl, and two or three on the penult whorl. There are also very fine, irregular longitudinal striæ; *whorls* four-and-a-half or five, very convex, the last occupying about three-fourths of the shell; *spire* short, bluntly-pointed; *suture* not deep; *mouth* nearly round, angulated above; *outer lip* reflected over the umbilicus, which it partly covers; *inner lip* spread over the columella; *peristome* reddish white inside. L.1.75. B.1.75.

Hab. Woods, hedge banks and uncultivated places. In Chedworth Parish, and about Frog Mill in Dorsetshire, &c., &c. (Da Costa).

On the authority of da Costa, this shell is attributed to Dorsetshire; Pulteney says "I never found it in Dorsetshire, but am credibly informed it has been seen in this county."

3.—H. ASPERSA, *Muller*, pl. .8

HELIX LUCORUM, *Pult. cat.*, p. 48.

HELIX HORTENSIS, *Rack. ed.*, p. 55, pl. 20, fig. 1.

Body oblong, contracted and rounded in front, very gradually decreasing, and pointed behind, dark-brown above, dirty-grey beneath.

Shell globular, solid, not glossy, opaque, yellowish or greenish-yellow, with brownish bands, streaked with zigzag stripes of white on the two last whorls; striæ very fine and indistinct, which are often obliterated by transverse striæ, giving it the appearance of being reticulated; *whorls* four and a half, convex, the last the largest, which occupies about two-thirds of the shell; *suture* well marked, *spire* raised; *mouth* obliquely oval, obtusely angulated above, *outer lip* white inside, reflected; *inner lip* spread upon the columella. L.1.4. B.1.4.

Hab. Woods and gardens (especially the latter). Generally distributed.

4.—H. NEMORALIS, *Linn.*, pl. 8.

Pult. cat., p. 48, *Rack. ed.*, p. 54, pl. 21, fig. 1,2,3,4.

Body dark brown, with a yellow tinge.

Shell globular, very convex above, depressed below, thin, solid, smooth, nearly opaque, yellow, brown, pink, or white in a variety of shades, with one to five dark spiral brown or purple bands, rarely white or blue; almost always continuous, but sometimes interrupted, finely and irregularly striated, striæ undulatory; *whorls* five-and-a-

half, convex, the last occupying about three-fifths of the shell; *spire* slightly raised, blunt; *suture* well marked, not deep; *mouth* crescent-shaped, oblique; *outer lip* thick, reflected, with a rib inside, inflected above; colour of the *lip*, *rib*, and *columella* reddish-brown; *inner lip* of the same hue but paler; *umbilicus* in the adults completely closed. L.0.65. B.0.9.

Var. 1.—*hortensis*. Shell smaller and more globular; *mouth* white-lipped, and rib of the same colour; *inner lip* excessively thin and coloured, or banded like the rest of the shell; often without bands.

Var. 2.—*hybrida*. Shell of the same size as the first variety, but not so globular; *mouth* and *rib* of a pink or liver-colour.

Var. 3.—*major*, Ferussac. Shell much larger and rather more depressed than usual.

Var. 4.—*minor*. Shell dwarfed, of the same shape and colour as the first variety.

Hab. Woods, hedges and gardens. Generally distributed.

Var. 1.—Worth Matravers; Smedmore; Houghton Wood (J.C.M.P.). Var. 2.—Rodwell, near Weymouth (Damon). Var. 3.—East Lulworth (Kendall); Gadcliff, Tyneham (J.C.M.P.). Quaternary tufaceous deposit, Blashenwell.

5.—H. ARBUSTORUM, *Linn.*, pl. 8.

Pult. cat., p. 47, *Rack.* ed., p. 54, pl. 2, fig. 6.

Body black, or dark-grey above, lighter grey beneath, shining, rounded in front.

Shell globular, convex above, and like the last depressed below, solid, nearly opaque, glossy, mottled with yellow and brown, generally with one longitudinal brown band round the middle of each whorl, with faint unequal spiral lines, intersected by other finer ones; *whorls* five to six, convex, the last occupying about three-fifths of the shell; *suture* deep; *spire* depressed usually, and obtuse; *umbilicus* very narrow and oblique; *mouth* oval crescent-shaped; *outer lip* white, thick, and reflected; *inner lip* very thin and transparent, filmlike. L.0.5. B.0.8.

Hab. In moist and shady woods and hedges, East Lulworth (Kendall); Swyre Hill, Encombe; Stoke Wake Hill; Houghton Wood (shell smaller, with three brown bands round the last whorl). Woods, Creech Grange (J.C.M.P.).

6.—H. CANTIANA, *Montagu*, pl. 8.

Pult. cat., *Rack*, ed., p. 53, pl., 19, fig. 21.

Body yellowish, or rosy, becoming darker in front, covered with rounded tubercles.

Shell subglobular, compressed above and below, rather thin, solid, semitransparent, slightly glossy, yellowish-white, or pallid flesh-colour above, more rufous beneath and near the outer lip; frequently with a white but undistinct band in the middle of the whorl; *whorls* six to seven, convex, occupying more than one-half of the shell; *spire* blunt, slightly raised; *suture* rather deep; *mouth* oblique, forming a segment of about three-fifths of a circle, reddish, with a white rib, placed at a little distance from the edge; *outer lip* a little reflected and slightly dilated upon the columella; *umbilicus* rather deep exposing the whole of the *spire*. L.0.4. B.0.7.

Hab. Hedges, wooded banks, and walls. Spettisbury (Rackett); Puncknoll, near Bridport. It occurs in the Quaternary tufaceous deposit at Blashenwell, Kingston, Isle of Purbeck. (J.C.M.P.).

7.—H. RUFESCENS, *Pennant*, pl. 8.

Pult. cat., p. 47, *Rack*, p. 53, pl. 20, f. 6.

Body ash-colour, of various shades, with a dark band along the head and neck.

Shell depressed above, subangulated below, thin, solid, not glossy, nearly transparent, reddish horn-colour, disposed in alternate lighter and darker shades, with an indistinct band round the last whorl, which is keeled obtusely; *whorls* six to seven, depressed above, convex below, the last occupying more than half the shell; *spire* depressed; *umbilicus* rather deep; *mouth* oblique, nearly crescent-shaped; a broad white *rib* at a little distance from the opening, which is usually dark liver-colour. L.0.3. B.0.5.

Hab. Hedges, gardens, under stones and decayed timber. Generally distributed.

8.—H. CONCINNA, *Jeffreys*, pl. 9.

Body reddish-brown; foot narrow.

Shell subconic, convex above and below, semitransparent, light ash-grey, with occasionally faint streaks of reddish-brown, and like *H. rufescens* has a white spiral band on the last whorl, which is

obtusely keeled; *epidermis* rather thick, sparsely covered with short white hairs; *whorls* six to seven, the last scarcely occupying one-half of the shell; *spire* short and blunt; *suture* deep; *mouth* obliquely semilunar, considerably higher than broad, furnished with a sharp white *rib* inside; *umbilicus* broad and deep. L.O.2. B.O.4.

Hab. Under stones, at the roots of grass. Chapman's Pool, Encombe (J.C.M.P.).

9.—*H. HISPIDA*, *Linn.*, pl. 9.

Pult. cat., p. 47. *Rack.* ed. p. 54, pl. 21, f. 10.

Body blackish-brown or slate-colour above, greyish brown beneath.

Shell sub-conic, convex, more so above than below, thin, solid, covered with curved stiff hairs, not glossy, semi-transparent, dark yellowish-brown; *whorls* six to seven, the last occupying about one-third of the shell; *spire* slightly raised, obtuse; *suture* deep; *mouth* crescent-shaped, broader than high, with a reddish or whitish *rib* inside; *inner lip* slightly arched, reflected towards the *umbilicus*, which is small and narrow. L.O.185. B.O.3.

Hab. Under stones and logs of timber, among moss and herbage in woods, gardens, and hedges. Generally distributed.

10.—*H. SERICEA*, *Müller*, pl. 9.

British Conch., vol. 1, p. 201.

Body brownish or yellowish-grey.

Shell subglobose, thin, fragile, greyish-white, with transverse streaks of reddish-brown; *whorls* six, very convex, the last occupying nearly one-half of the shell; *suture* moderately deep; *spire* much raised; *peristome* similar to *H. hispida*, excepting the *outer lip*, which is slightly reflected; *umbilicus* very small and deep. L.O.2. B.O.3.

Var. *cornea*.—Shell horn-colour, very thin, glossy and transparent, the labial rib perceptible on the outside.

Hab. Mossy banks, damp meadows, under leaves and stones, Langton Matravers; meadows, Chamberlayne's, Bere Regis (J.C.M.P.). The variety was found at Lulworth (Gwyn Jeffreys).

11.—*H. FUSCA*, *Montagu*, pl. 9.

Body long, yellowish-grey, with a violet tinge, especially towards the head.

Shell sub-conical, slightly convex above and below, thin, fragile, very glossy, yellowish-brown, marked with strong, irregular transverse wrinkles; *whorls* four to five, the last slightly keeled, occupying rather more than one-half of the shell; *spire* a little raised, obtuse; *suture* not deep; *mouth* rather large, crescent shaped, considerably broader than high; no *rib*; *outer lip* reflected over the umbilicus and sharply inflected above; *umbilicus* small and reduced to a little more than a perforation. L.O.225. B.O.35.

Hab. Woods, on young trees, brambles, osier-beds, East Lulworth (Kendall); Langton Matravers, on the left-hand side of the lower road to Corfe Castle (J.C.M.P.).

12.—H. PISANA, Müller, pl. 8.

HELIX CINGENDA, *Pult. cat.*, p. 53, pl. 18, fig. 5. *Mont. Test. Brit.*, p. 418, pl. 24, f. 4.

Body yellow-grey above, reddish towards the head.

Shell globular, not so convex above as below, thin, solid, moderately glossy, yellowish-white, with brown spiral bands, sometimes interrupted, or speckled; *whorls* five and a half, compressed towards the suture, marked with indistinct fine, irregular, longitudinal striæ, which intersect the transverse ones, giving a reticulated appearance to the surface, the last whorl occupies more than one-half of the shell; *spire* slightly raised, but obtuse, summit purplish-brown; *suture* shallow; *mouth* pinkish within, broadly lunate, thickened internally, nearly as high as it is broad, with a rib more or less rose-coloured; *outer lip* reflected towards the *umbilicus*, which is extremely small and narrow. L.O.5. B.O.75.

Hab. Sandbanks, between Lulworth and Weymouth (Pulteney).

13.—H. VIRGATA, Da Costa, pl. 8.

Pult. cat., p. 47. *Rack. ed.* p. 53, pl. 20, fig. 7. *Brit. Conch.*, vol. i, p. 211, 213; *Geology of Weymouth*, p. 234.

Body yellowish-white.

Shell conical, raised more or less above, convex below, somewhat opaque and solid, slightly glossy, white or cream-colour, with one broad brown or chesnut band just above the periphery, other bands more or less in number above and below, entire or interrupted, and reduced to spots or specks, longitudinal striæ only; *whorls* six, very convex, the last occupying more than one-half of the shell, not keeled; *spire* purplish-brown at the point; *mouth* semi-lunar,

inside purplish-brown, with a thick *rib* of the same colour; *outer lip* reflected over the *umbilicus*, which is narrow and deep, exposing most of the interior of the shell. L.0.4. B.0.55.

Var. *carinata*. — Shell yellowish-white, compressed above; *periphery* strongly keeled.

Hab. Downs, limestone pastures, and heaths, abundant on and near the sea coast. Var.—Winfrith, near Wareham (Daniel); Weymouth (Damon). Mr. Gwyn Jeffreys says “The largest specimens of *H. virgata* that I have ever seen were collected by Mr. William Thompson, near Weymouth; they were four-fifths of an inch in breadth.”

14.—*H. CAPERATA*, *Montagu*, pl. 9.

Pult. cat., *Rack. ed.*, p. 53, pl. 19, fig. 20. Geology of Weymouth, p. 234.

Body yellowish-grey, with a blackish band on each side.

Shell depressed above, slightly convex below, solid, not glossy, opaque, greyish or reddish-white above, with several brown bands more or less interrupted below, giving it a mottled appearance, *striae* deeply marked, riblike; *whorls* six, the last occupying about two-fifths of the shell, and slightly dilated towards the mouth, which is oblique, with a strong *rib* inside, which is sometimes double; *spire* slightly raised, brown at the summit; *outer lip* reflected towards the *umbilicus*, which exposes the interior of the spire. L.0.225. B.0.375.

Var. *subscalaris*.—Shell conical; *whorls* more convex.

Hab. Under stones, on the stalks of grass, and shrubs. Generally distributed. Covers the downs and grassy lands of Portland Damon). Var.—Smedmore (J.C.M.P.).

15.—*H. ERICETORUM*, *Müller*, pl. 8.

Pult. cat., p. 47. *Rack. ed.*, p. 53, pl. 20, fig. 8.

Body greyish-white, yellowish, or reddish-brown.

Shell circular, much depressed above, slightly convex below, thin, solid, slightly glossy, whitish, or cream-colour, usually with a broad chesnut band a little above the periphery, and from two to six narrow bands of the same colour below it, very fine, indistinct,

and irregular striæ; *whorls* six, the last occupying about three-fifths of the shell; *spire* almost flat; *suture* deep; *mouth* very oblique, round with a slight inside *rib*, white or reddish; *umbilicus* large and open. L.0.25 B.0.675.

Var. *alba*. *Charpentier*.—Shell milk-white.

Hab. Dry heaths, downs, on shrubs and plants. Generally distributed. Var.—Pastures, Kimmeridge Hill (J.C.M.P.).

16.—H. ROTUNDATA, *Müller*, pl. 9.

HELIX RADIATA, *Pult. cat.*, p. 47., *Rack. ed.*, p. 54, pl. 20, f. 15, 16.

Body rounded in front, obtusely pointed behind, greyslate-colour or brown, with a tinge of blue, marked with black specks on the sides and tail.

Shell depressed, especially beneath, rather thin, not very glossy, yellowish-brown or horn-colour, with transverse streaks of reddish brown; extremely fine, slightly raised ribs above and below, excepting the first whorl, which is destitute of ribs; *whorls* six to seven, the last occupying about one-third of the shell, keeled; *spire* slightly raised; *suture* deep; *mouth* obliquely quadrangular, with a flesh-coloured or white *rib* inside; *umbilicus* very large and deep. L.0.1. B.0.275.

Hab. Under stones, logs of wood, and bark of old trees, moss, &c. Generally distributed. Quaternary deposit, Blasherwell.

17.—H. RUPESTRIS, *Studer*, pl. 9.

HELIX UMBILICATA, *F. and H.*, vol. iv., p. 81, 6, 7, 8; *Pult. cat.*, *Rack. ed.*, p. 54, pl. 19, f. 24; *Mont. Test. Brit.*, p. 434, pl. 13, fig. 2.

Body round in front, narrowing towards the tail, dark slate-colour, or reddish, covered with small, scarcely raised tubercles.

Shell subconical, more convex above than below, thin, fragile, slightly glossy, dark-brown or horn-colour, marked longitudinally with extremely fine, irregular, nearly defaced striæ; *whorls* five, the last only keeled when young; *spire* raised, summit glossy; *suture* deep; *mouth* oblique, rounded, horse-shoe shaped; *umbilicus* large, often exposing the interior of the spire. L.0.075. B.0.115.

Hab. On rocks, walls, and stones. Under loose stones in Portland, and on the top of Corfe Castle, Montagu. Very abundant in Purbeck, there is not a stone wall throughout the district, which is not the resort of this little mollusc; Puncknoll (J.C.M.P.).

18.—PYGMÆA, *Draparnaud*, pl. 9.

Robinson's *Purbeck*, p. 178.

Body dusky-black, or greyish slate-colour, speckled with black.

Shell depressed above and below, thin, fragile, rather glossy, palish red, or brown, marked longitudinally with extremely fine, irregular striæ; *whorls* four, convex, increasing gradually; *spire* flattish; *suture* deep; *umbilicus* exposing the exterior of the spire; *mouth* oblique, horse-shoe shaped, with no internal *rib*. L.0.03. B.0.06.

Hab. Woods and moist places, under stones and among dead leaves in moist places; often overlooked on account of its minuteness. In a lane near Godlingston (Smith). East Lulworth (Kendall). Under stones, Round Down, Swanage (J.C.M.P.). St oborough.

19.—H. PULCHELLA, *Müller*, pl. 9.

HELIX PALUDOSA, *Pult. cat.*, *Rack.* ed., p. 53, pl. 19, fig. 25; Maton and Rackett, *Trans. Linn., Soc.*, vol. viii., pl. 123, pl. 5, fig 5.

Robinson's *Purbeck*, p. 177.

Body exceedingly truncate before, bluntly pointed behind, white, with a yellowish tinge, darker below, slightly shagreened on the back and sides.

Shell depressed, very flat above, convex below, thin, very solid, semi-transparent, glossy, grey or white with numerous fine longitudinal striæ, not very distinctly marked; *periphery* not keeled, except in the young, and then bluntly so; *whorls* three-and-a-half, the last exceeding the rest of the shell in size; *spire* very little raised; *suture* deep; *mouth* circular, with a broad expanded and reflexed edge; *umbilicus* large, exposing most of the whorls and all the internal spire. L.0.04. B.0.09.

Var. *costata*. Shell much less glossy, and marked transversely with curved membranaceous ridges.

Hab. Under stones and logs of timber, in moss and among grass. Spettisbury, (T. Rackett); among moss, Whatcombe Park: Houghton and Clenston Woods; under stones in pastures, Puncknoll; Durlleston Bay, abundant between Swanage and Dancing Ledge, at the roots of grass (J.C.M.P.) Var. Neighbourhood of Swanage, (Smith); Weymouth (Damon). Holme; Creech Grange.

20.—H. LAPICIDA, *Linn.*, pl. 8.

Pult. cat., p. 46. *Rack. ed.*, p. 52, pl. 20, fig. 9.

Body yellowish-brown above, slightly reddish in front, grey behind and beneath.

Shell depressed, thin, very solid, shagreened, almost opaque, reddish horn-colour, irregularly streaked across the whorls with darker tints of the same colour; *periphery* sharply keeled; *whorls* five, the last exceeding the rest of the shell in size, dilated towards the *mouth*, which is obliquely oval, angular above and below; *outer lip* white, thickened and reflected; *umbilicus* rather large. L.O.25. B.O.65.

Hab. Rocks, walls, woods. Generally distributed. Quaternary tufaceous deposit, Blashenwell.

Genus V.—BULIMUS, *Scopoli*.

This genus differs very slightly from *Helix*, the tentacles are shorter, and the shell more prolonged at the spire; there is a difference too in the structure of the lower jaw, which is destitute of teeth, and in the arrangement of the generative organs. Their habits are similar to those of *Helix*, hiding themselves under stones, grass, moss, dead leaves, &c.

1.—BULIMUS ACUTUS, *Müller*, pl. 9.

F. and H., vol. iv., p. 86, pl. cxxviii., f. 5.

HELIX BIFASCIATA, *Pult. cat.*, p. 49. *Rack. ed.*, p. 55, pl. 18, fig. 8, 10. *Maton and Rackett*, *Trans. Linn. Soc.*, vol. viii., p. 210.

Body short and thick, narrow and truncate in front, slender and pointed behind; yellowish-grey, with darker tints towards the neck and beneath.

Shell turreted, with large and rather roughly grooved longitudinal striae, almost opaque, whitish or greyish, with one or two brown bands, continuous or interrupted, sometimes extending to the upper whorls; *periphery* round, not keeled; *whorls* eight to nine, convex, gradually increasing in size, the last occupying about one-third of the shell; *spire* tapering and blunt; *mouth* oval; *umbilicus* narrow, partly concealed by the pillar lip. L.O.6. B.O.2.

Hab. Downs and sandhills near the sea, Lulworth Cove (*Maton and Rack.*); abundant on the waste lands of Dorsetshire (on Chalk, Purbeck and Portland stone) (*Forbes and*

Hanley); on the sandbanks between Ferry Bridge and Portland (Damon); Worbarrow Bay; Nothe, Weymouth; top of cliffs, west side of Lulworth Cove; Bindon Mills (J.C.M.P.).

2.—B. MONTANUS, *Draparnaud*, pl. 9.

B. LACKHAMENSIS, *F. and H.*, iv. p. 89, pl. cxxviii, fig. 6.

Body rather large, thick, rounded in front, gradually decreasing behind, dark-red or greyish-brown.

Shell elongate-concoid, rather tumid, glossy, semi-transparent, yellowish-brown, surface striated with extremely fine scarcely perceptible lines, and intersected by transverse ones, giving the surface a shagreened appearance; *whorls* seven and a half, increasing rapidly from the apex, the last occupies about half of the shell; *suture* well marked but shallow; *umbilicus* nearly covered by the reflection of the *pillar lip*; *spire* tapering, blunt. L.0.65. B.0.225.

Hab. On trunks of trees, chiefly of beech, ash and horn-beam, East Lulworth (Kendall).

3.—B. OBSCURUS, *Muller*, pl. 9.

B. OBSCURUS, *British Conch.*, vol. i., p. 237.

HELIX OBSCURA, *Pult. cat.*, *Raek.* ed. p. 55, pl. 19, fig. 17.

Mont. Test. Brit., p. 391, pl. 22, f. 5.

Body short and thick, truncate in front, and pointed behind, brown or reddish above, of a darker hue below.

Shell oval-oblong, semi-transparent, slightly glossy, dark reddish-brown, oblique, very fine, unequal longitudinal striæ; *whorls* six and a half; *suture* well marked; *mouth* slightly oblique, oval, interrupted by the antipenult whorl; *outer lip* reflected, thickened, white in the inside; *inner lip* reflected upon the *umbilicus*, which is much contracted. L.0.35. B.0.15.

Var. alba.—Shell white or colourless.

Hab.—On trunks of trees and among dead leaves in woods, on walls, rocky places. Upon the highest top of Portland Island, under stones (Montagu); cliffs about Secombe, Worth Matravers; Houghton; Chapman's Pool, near Encombe (J.C.M.P.). Var.—Lulworth (Gwyn Jeffreys).

Genus VI.—PUPA, Lamarck.

Mouth in the greater number of species furnished with transverse plaits or teeth within; *peristome* usually reflexed or thickened.

1.—PUPA SECALE, *Draparnaud*, pl. 9.

TURBO JUNIPERI, *Pult. cat.*, *Rack. ed.*, p. 51, pl. 19, f. 11*. *Maton and Rack.*, *Trans. Linn. Soc.*, vol. viii., p. 182.

Body very small, blackish.

Shell oval oblong, attenuated, blunt at the summit, solid, slightly glossy, light-brown, or horn-colour, marked longitudinally with flexuous, well-defined, regular striæ; *whorls* eight to nine, gradually increasing in size; *suture* oblique and rather deep; *mouth* round, with two or three teeth or plaits on the pillar, two on the *pillar-lip*, one sometimes absent, four inside the outer-lip, which extend far within; *outer lip*, reflected; *umbilicus* very small and oblique. L.0.3. B.0.125.

Var. alba. Shell white or colourless.

Hab. Rocks, cliffs, woods and hill-sides; hills near St. Catherine's Chapel, Abbotsbury (Bryer); East Lulworth (Kendall); abundant on the cliffs, Durlleston Bay; Gadcliff near Kimmeridge (J.C.M.P.). Var.—Lulworth, rare (Gwyn Jeffreys.)

2.—P. UMBILICATA, *Draparnaud*, pl. 9.

TURBO MUSCORUM, *Pult. cat.*, p. 46 (in part). *Rack. ed.*, p. 51, pl. 21, f. 16 (probably).

Body strongly truncate in front, blunt behind, greyish-brown with a black tinge towards the neck, lighter on the edges, much more so towards the tail.

Shell subcylindrical, slightly attenuated towards the spire, which is abruptly blunt, yellowish-brown or horn-colour, thin, solid, glossy, with indistinct irregular striæ in the line of growth; *whorls* six to seven, the two first much smaller in proportion to the rest; *mouth* obliquely oval, rounded at the base, one plait* or tooth on the pillar and a short one on the *pillar-lip*; *peristome* white, reflected, *inner lip* spread on the pillar; *umbilicus* very small, surrounded by the lower portion of the last whorl. L.0.15. B.0.075.

Hab. On walls and rocks, under stones, among dead leaves, and under the bark of trees. Generally distributed. Very abundant in the Isle of Purbeck (J.C.M.P.).

3.—P. MARGINATA, *Draparnaud*, pl. 9.

PUPA MUSCORUM, *F. & H. iv.*, p. 97, pl. cxxix., fig. 8.9.

Body oblong, slightly rounded in front, black or slightly brownish, shining, punctuated with very fine black specks underneath.

Shell subcylindrical, slightly glossy, pale yellowish-brown, or horn-colour, irregularly marked, indistinct, extremely fine and closely set longitudinal striæ in the line of growth; *whorls* six to seven, convex, *suture* rather deep; *spire* short and blunt; *mouth* furnished with a tooth on the pillar near the middle, inside tinged with reddish-brown; *outer lip* not reflected, with a white exterior *rib* near the margin; *umbilicus* slightly oblique, moderately open, partly surrounded by the lower portion of the last whorl. L.O.133. B.O.6.

Var. 1. *bigranata*. Shell rather smaller and thicker, and having a tubercular tooth or denticle considerably within the *outer lip* as well as that on the *columella*.

Var. 2. *albina*, Menke. Shell white.

Hab. Under stones, at the roots of grass and amongst dead leaves. Generally distributed, but not so common as the previous species. Var. 1.—Lulworth (Gwyn Jeffreys). Var. 2.—Ulwell, near Swanage (J.C.M.P.).

Genus VII.—VERTIGO, Müller.

Tentacles two only, scarcely inflated at the summit. Müller was the first to observe that these little animals had two tentacles instead of the usual four, and on this peculiarity he founded this present genus.

I.—VERTIGO ANTIVERTIGO, *Draparnaud*, pl. 10.

Body short, thick, nearly cylindrical, greyish-black, tinged with slate colour.

Shell ovate-oblong, thin, glossy, transparent, reddish or yellowish-brown, with very faintly marked, closely set, longitudinal striæ; *whorls* four and a half, ventricose, the last occupying about half of the shell; *suture* deep; *spire* obtuse; *mouth* obliquely oval, contracted in the middle of the outer edge, with about seven reddish, deeply-seated teeth, three on the pillar, of which one is usually a small tubercle, one on the *pillar lip* and three inside the outer lip, which are sublamellar; *outer lip* which is whitish, is strengthened by an exterior *rib*; outer and inner lips uninterrupted, forming a complete *peristome*; *umbilicus* open, half encircled by a prominent ridge, by which it is slightly contracted. L.O.065. B.O.04.

Hab. Under stones and felled timber, on water plants and in marshy places. Wool, near the railway (Kendall).

2.—V. PYGMÆA, *Draparnaud*, pl. 10.

British Conch., vol. i., p. 257.

Body expanded and rounded in front, narrowing insensibly and pointed behind, dark slate-colour.

Shell subcylindrical or oval; thin, glossy, transparent, reddish-brown, or yellowish, with very fine, close-set, unequal, indistinct longitudinal striæ; *whorls* four-and-a-half, convex, the last nearly as large as the rest of the shell; *spire* obtusely pointed; *teeth* four or five, one sharp and prominent on the middle of the pillar, one strong and thick on the pillar-lip, and two or three plait-like teeth inside the *outer lip*, which is rather thin and slightly reflected; *umbilicus* small and deep. L.0.065. B.0.04.

Var. *pallida*.—Shell thinner and of a lighter colour.

Hab. Under stones and logs of wood, at the roots of grass. East Lulworth (Kendall); Ulwell, near Swanage; Houghton Wood (J.C.M.P.) Var.—Wool (Daniel).

3.—V. EDENTULA, *Draparnaud*, pl. 10.

Robinson's *Purbeck*, p. 178.

Body slender, ash-grey, darker above, paler behind, on the sides, and beneath.

Shell oblong, cylindrical, thin, transparent, glossy, light yellowish horn-colour, somewhat inclined to be angular; *whorls* five-and-a-half to six-and-a-half; *spire* blunt; *suture* deep; *mouth* destitute of teeth; *outer lip*, interrupted, without an outside rib, scarcely reflected except towards the *umbilicus*, which is narrow and deep, half surrounded by the base of the last whorl. B.0.1. B.0.05.

Hab. Woods, among dead leaves, at the roots of grass and on the trunks of trees. Chapman's Pool, near Encombe (Smith); East Lulworth (Kendall); on the walls of Ulwell, near Swanage (J.C.M.P.).

4.—V. MINUTISSIMA, *Hartmann*, pl. 10.

Brit. Conch., vol. i., p. 270.

Body narrow, and rounded in front, gradually attenuated and slightly blunt behind, slate-grey; dotted with black.

Shell oblong, nearly cylindrical, semi-transparent and glossy, yellowish or horn-colour, *periphery* rounded, with a tendency to angularity; *whorls* five-and-a-half, moderately convex, the body whorl occupying about two-fifths of the shell; *spire* blunt at the point; *mouth* (in British specimens) destitute of teeth; *outer lip* thin, white and reflected; *umbilicus* small. L.0.07. B.0.035.

Hab. Under stones. Lulworth (Gwyn Jeffreys); Houghton Wood (J.C.M.P.)

Genus VIII.—*BALIA* (*Balea*) *Prideaux*.

Shell sinistral, turriculate, elongated, many-whorled, resembling a young *Clausilia*, for which it may easily be mistaken; it approaches the genus *Vertigo* in its tooth on the pillar; *umbilicus* narrow and oblique.

BALIA PERVERSA, *Linn.*, pl. 10.

TURBO PERVERSUS, *Pult. cat.*, *Rack. ed.*, p. 51, pl. 19, f. 11.

Body comparatively large, slender and tapering behind, dark brown passing into a slaty-grey, covered with small white tubercles and specks.

Shell spindle-shaped, very thin, fragile, and glossy, yellowish-brown, with indistinct, fine, closely-set longitudinal striæ, and a few transverse ones; *whorls* seven to eight, convex, the last inflated; *spire* bluntly pointed; *suture* deep; *mouth* oval, one whitish tubercular tooth often on the columella; *outer lip* interrupted, thin, slightly reflexed, white; *umbilicus* oblique and narrow. L.O.275. B.O.1.

Hab. On the trunks of trees, ash, sycamore, &c., between the rugosities of the bark, lichen, rocks and walls covered with vegetation. On walls, East Lulworth (Kendall), Smedmore; Clenston Wood (J.C.M.P.).

Genus IX.—*CLAUSILIA*, *Draparnaud*.

Shell sinistral, spindle-shaped; *spire* long; *mouth* small with a deep sinus at the upper part, which makes it more or less pyriform, it is also furnished with two spiral plates placed either near the margin, or farther in, where there is also an elastic plate, and moveable, taking the place of an *operculum*; *outer lip* uninterrupted; *umbilicus* merely a slit.

1.—*CLAUSILIA RUGOSA*, *Draparnaud*, pl. 10.

TURBO PERVERSUS, *Pult. cat.*, p. 46 (in part).

TURBO NIGRICANS, *Pult. cat.*, *Rack. ed.*, p. 51, pl. 19, f. 10.

CLAUSILIA NIGRICANS, *F. and H. iv.*, p. 121, pl. cxxix., f. 1, 2.

Body small compared with the size of the shell, dark-grey or slate-colour, paler on the sides and underneath.

Shell club-shaped, solid and not transparent, rather glossy, dark horn-colour, with a few unequal longitudinal whitish streaks, interrupted by the sutures; *whorls* twelve to thirteen, compressed; *suture* shallow; *spire* diminishing to a blunt point; *mouth* oval-pear-shaped, compressed on the outer side; the upper tooth or fold prominent, and oblique; the lower one also oblique, smaller and

sometimes bifurcate far within the neck of the shell, where there is another strong tooth on the *pillar lip*, and one still farther in, occasionally one or two teeth within the outer-lip, which is thick, white, and reflected; *umbilicus* a slight cleft; *clausilium* oval-oblong, obtuse below, slightly dilated above, thin, thickened at the margin which is entire. L.0.5. B.0.1.

Hab. On walls and rocks, under stones and trunks of trees. Generally distributed.

2.—C. LAMINATA, *Montagu*, pl. 10.

TURBO PERVERSUS, *Pult. cat.*, p. 46 (in part).

TURBO LAMINATUS, *Rack. ed.*, p. 51, pl. 19, f. 9, *Mont. Test. Brit.*, p. 359, pl. 11, f. 4.

Body slightly attenuated and truncate in front, slightly pointed behind, reddish-black or greyish-brown above, light-grey on the sides and underneath.

Shell fusiform, slightly ventricose towards the centre, solid, glossy, semi-transparent, dark-yellowish horn-colour, with a reddish tinge, longitudinal striæ very delicately fine, invisible to the naked eye, a few coarse wrinkles near the mouth; *u horts* twelve, compressed, the first two or three similar in diameter and breadth; *spire* tapering, obtuse at the point; *mouth* rounded, dilated below, not angulated above as is the case with *C. rugosa*; *upper tooth* projecting, long and nearly straight; *lower one* slightly separated from the upper, very thin, no interlaminary plaits; there are three or four palatal folds, which are visible from the outside, owing to the transparency of the shell; *outer lip* white and expanded; *umbilicus* very small; *clausilium* quadrate-oblong, obliquely and deeply notched towards the base, white. L.0.7. B.0.15.

Hab. On the trunks and roots of trees, especially on the beach and ash, woods and bushy cliffs; on an ash tree, Grange Wood; bushy places on the summit of Old Harry, Studland (J.C.M.P.).

SPURIOUS.

CLAUSILIA BIDENS, *Linn.*

TURBO BIDENS, *Pult. cat.*, p. 46, *Maton. Rack., Trans. Linn.*, vol. viii., p. 176, pl. 5, f. 3.

Figured in the Linnean transactions as a Dorset species, but doubtless erroneous. "We have given a figure from a specimen in Doctor Pulteney's Museum, now in the possession of the

Society. He notes it as a Dorsetshire shell, but there is reason to believe he was deceived, and that this species was not of British growth, since, notwithstanding a more diligent search we have been unable to procure it." (Maton and Rackett).

Genus X.—COCHLICOPA, Ferussac.

1.—COCHLICOPA TRIDENS, *Pulteney*, pl. 10.

TURBO TRIDENS, *Pult. cat.*, p. 46, *Rack.* ed., p. 51, pl. 19, f. 12.
Maton and Rackett, Trans. Linn., Soc. vol. viii.,
p. 181.

AZECA TRIDENS, *F. and H.* iv., p. 128, pl. cxxv., f. 9.

A.—*Mouth* furnished with teeth, *outer lip* sinuous or notched.

Body greyish slate-colour with a tinge of yellow, closely covered with small black specks, wrinkled.

Shell elongated, subcylindrical, thin, solid, very glossy, sub-transparent, light yellowish-brown, with a red tinge, faintly marked, extremely fine, unequal longitudinal striæ, invisible to the naked eye; *periphery* rounded, keeled in young specimens; *whorls* seven, the last much larger in proportion; *spire* rounded at the summit; *suture* superficial, with a transversely wrinkled border; *mouth* narrow, diminishing upwards, angulated below, contracted still further by a tooth, or plate-like fold on the pillar, extending into the interior, there is also a small tooth between it and the outer lip; a strong fold winds round the pillar lip, and a tubercle on the middle of the outer lip on its inside edge, there are also occasionally two diminutive denticles placed below it; *peristome* nearly uninterrupted, furnished with a marginal rib in the inside, which is often reddish-brown or flesh-colour. L.O.25. B.O.1.

Hab. Among herbage, and damp moss in woods, rare. On water plants, by the river Stour (Pulteney.). In his notice of this shell, Montagu says "The species here described we received from Dr. Pulteney; who has given it in his "Catalogue of Dorsetshire Shells," and says it is found on water plants, by the river Stour in Dorsetshire."

"It appears that Dr. Pulteney furnished Montagu with a Dorsetshire specimen of this rare shell; also that Mr. Boys, as well as Dr. Pulteney, had found it." (Maton and Rackett.)

2.—C. LUBRICA, *Müller*, pl. 10.

HELIX LUBRICA, *Pult. cat.*, *Rack* ed., p. 55, pl. 21, f. 18.

ZUA LUBRICA, *F. and H.*, p. 125, pl. cxxv., f. 8.

B.—*Mouth* destitute of teeth or folds; *outer lip* entire.

Body broad and rounded in front, gradually narrowing and very pointed behind.

Shell subcylindrical, slightly ventricose, thin, transparent, very glossy, light yellowish-brown, with oblique, fine, longitudinal striæ, scarcely visible even to the naked eye; *whorls* five or five-and-a-half, gradually increasing in size, the last occupying about one-half of the shell; *spire* conical, rounded at the point; *suture* well marked, with a transversely wrinkled border; *mouth* oblique; *outer lip* interrupted, with a broad inside *rib*, which is usually reddish-brown, or flesh-colour. L.0.25. B.0.85.

Hab. Woods, under stones and logs of wood, among moss, and dead leaves. Generally distributed. Moss, Bryanston; Clenston wood; Smedmore; Quaternary tufaceous deposit, Blashenwell (J.C.M.P.).

Genus XI.—ACHATINA, *Lamarck*.

Shell long and slender, cylindrical, thin, glossy, smooth; *spire* long; *mouth* without teeth or folds, notched and nearly truncate at the base; *umbilicus* wanting.

ACHATINA ACICULA, *Müller*, pl. 10.

Robinson's *Purbeck*, p. 178.

Body transparent, white.

Shell spindle-shaped, slightly attenuated below, and gradually tapering towards the apex, thin, shining and polished, ivory-white, showing under the microscope beautiful delicate striæ; *whorls* five-and-a-half, scarcely convex, increasing rapidly, the last occupying about one-half of the shell; *spire* blunt; *suture* rather deep, oblique, often appearing marginated on the under side, on account of the transparency of the shell; *mouth* oblique, pear-shaped, angulated above, wider and rounded below, contracted by the penultimate whorl; *pillar-lip* reflected, with a deep notch at its base; *outer-lip* thin and flexuous. L.0.175. B.0.04.

Hab. Under stones and at the roots of trees, bushes, and grass, usually some inches below the surface. At the base of Nine-Barrow Down, where the chalk unites with the green-sand (Smith); Punfield Cliff, Swanage; Quaternary tufaceous deposit at Blashenwell, near Kingston, Purbeck (J.C.M.P.).

FAMILY IV.—CARYCHIIDÆ.

Shell spiral, oval-oblong; *spire* moderately produced; *mouth* somewhat ear-shaped, oblique, narrowed above, with columellar folds and a tooth-like tubercle on the outer lip; *umbilicus* narrow and indistinct.

Genus I.—CARYCHIUM, *Müller*.CARYCHIUM MINIMUM, *Müller*, pl. 10.

TURBO CARYCHIUM, *Pult. cat., Rack. ed.*, p. 52, pl. 19, f. 13.

Body white, with eyes at the base of the short blunt tentacles; bilobed in front and rounded behind.

Shell subfusiform, glossy, shining, transparent, whitish, with closely-set delicately fine longitudinal striæ, which by their intersection with the transverse striæ, resemble the shells of *Limnæa*, giving it a reticulated, decussated appearance; *periphery* rounded; *whorls* five-and-a-half, convex, the last occupying nearly one-half of the shell; *spire* moderately pointed; *suture* deep; *mouth* obliquely oval, contracted below, furnished with a spiral fold in the middle of the pillar, one on the *pillar-lip* and another reaching to the edge of the *outer lip*, which is thick and reflected, uninterrupted; *umbilicus* consisting of an oblique slit. L.0.07. B.0.035.

Hab. Under stones and logs of wood, at the roots of grass, among moss and dead leaves, often overlooked, probably on account of its minute size. Amongst moss, Bryanston; Houghton and Clenston woods, Whatcombe Park (J.C.M.P.).

Genus II.—MELAMPUS, *De Montfort*.

Shell oval conoidal, solid; *spire* short; *mouth* elongated, narrow; *inner lip* with dentiform plications; *outer lip* sharp, toothed or fluted; no *umbilicus* or *operculum*.

MELAMPUS MYOSOTIS, *Draparnaud*, pl. 10.

VOLUTA DENTICULATA, *Pult. cat., Rack. ed.*, p. 44, pl. 18, f. 1, *Maton and Rack., Trans. Linn. Soc.* vol. viii., p. 130,

CONOVULUS DENTICULATUS, *F. and H.*, vol. iv., p. 194, pl. cxxv., f. 3.

Body yellowish or bluish-white.

Shell spindle-shaped, rather thin, semi-transparent, chocolate or yellowish-brown; faintly marked and closely-set, delicate longitudinal striæ; *spire* more produced in some specimens than in others; comparatively short, blunt, and unsymmetrical; *whorls* seven to eight, convex, tapering upwards, the last occupying about five-

eighths of the shell; *suture* shallow, nearly horizontal; *mouth* narrowed above, enlarged below, exceeding the rest of the shell in length; *outer lip* thin, reflected outwards, strengthened internally near the edge by a callosity, which is often furnished with a tubercle near the middle; *inner lip*, with two strong folds, and often a small tubercle above them. L.O.325. B.O.15.

Hab. On mud flats and estuarine salt marshes, under stones on the cliffs of the sea-coast, at various heights, far above high water-mark. Weymouth, in ditches and marshes overflowed by the salt water; Bryer (Pulteney). On the summit of the cliff, between Tilly Whim and Dancing Ledge, Langton Matravers (J.C.M.P.). River Frome, below Wareham. Purbeck paper.

I include this species in our list, as one of its Purbeck habitats is subaerial and never reached by the sea-wave, even at the highest spring tide. Mr. Gwyn Jeffreys rightly places it in the marine section of British Conchology, as do Montagu and Ferussac. It is included among the land shells by Draparnaud and Lamarek, under the generic name of *Auricula*; the whole of this family with few exceptions (*Carychium*, *Scarabus*), frequent salt-marshes and the vicinity of the sea.

FAMILY V.—CYCLOSTOMATIDÆ.

Shell spiral, rarely much elongated, transversely striated; *mouth* nearly circular; *peristome* uninterrupted; *operculum* distinctly spiral; *umbilicus* oblique and small.

CYCLOSTOMA, Draparnaud.

CYCLOSTOMA ELEGANS, Müller, pl. 10.

TURBO ELEGANS, *Pult. cat.*, *Rack*. ed. p. 50, pl. 21 f. 9.

Body bluntly bilobed in front, rounded behind, greyish-brown, almost black, paler underneath.

Shell oval, tumid, solid, opaque, slightly glossy, greyish-violet with a reddish-tinge, sometimes spotted or streaked transversely with brownish-violet, not always so; *striae* met at right angles by other transverse ones, which gives the surface a reticulated appearance; *periphery* rounded; *whorls* four-and-a-half, the last occupying more than two-thirds of the shell, the

upper one purplish brown, and smooth; *suture* very deep; *spire* bluntly pointed; *mouth* rounded, slightly angular above; both *lips* thick, forming a perfect peristome. reddish within; *operculum* flattened, horn-like; *whorls* five; nucleus eccentric, with oblique diverging striæ, dirty white, violet at the centre. L.O.6. B.O.4.

Hab. Under stones and at the roots of brushwood. Generally distributed; extremely abundant in Purbeck. Quaternary tufaceous deposit, Blashenwell, Kingston, Purbeck.

APPENDIX.

The following are included in the List of Land and Freshwater Shells published by the Purbeck Society in its uncompleted second volume, page 42, and which I inadvertently omitted to incorporate in the preceding paper (J.C.M.P.).

- PISIDIUM AMNICUM, Corfe river at King Edward's Bridge, Stoborough Meadow.
 ,, PUSILLUM, River on north side of Wareham; Stoborough meadows.
 BYTHINIA LEACHII, River Frome, streams at Swanage; Ulwell; Godlingston.
 HELIX ACULEATA, Leeson Wood, Langton Matravers, (Beccles).
 ,, CAPERATA, Worbarrow.
 ,, PULCHELLA, Among the moss at Holme and, on the adjoining heath.
 ZONITES PUSILLUS, Grange Wood.
 ,, NITIDULUS, Leeson Wood, Langton Matravers, Beccles.
 ,, CRYSTALLIVUS, Grange Wood.

A D D E N D A .

- LIMAX BRUNNEUS, among grass, Whatcombe (J.C.M.P.).
 HELIX PULCHELLA, var. costata, Holworth, near Osmington (J.C.M.P.).

E R R A T A .

PAGE	LINE	FOR	READ.
80	32	.. Henslowana	Henslowianum
..	35	.. pulchella	pulchellum
..	38	.. cinerea	cinereum
102	1	.. Mangel	Maugei
106	31	add Helix fulva, <i>F. and H. iv.</i> , p. 75.	
121	7	add Balea fragilis, <i>F. and H. iv.</i> , p. 114.	

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 ,, CAPERATA, Worbarrow.
 ,, PULCHELLA, Among the moss at Holme and, on the adjoining heath.
 ZONITES PUSILLUS, Grange Wood.
 ,, NITIDULUS, Leeson Wood, Langton Matravers, Beccles.
 ,, CRYSTALLIVUS, Grange Wood.

I am indebted to Mr. Edgar A. Smith, F. L. S., of the British Museum, and to Mr. R. Damon, F.G.S., for the valuable assistance I have received from them in the preparation of this, and for which I tender them my most grateful thanks.





Lepidoptera of the Isle of Purbeck.

By E. R. BANKES, Esq., assisted by the Rev.
C. R. DIGBY.

PLATE XI.



OWING to its natural characteristics the Isle of Purbeck affords, as might be expected, a most interesting field for the Entomologist. Forming as it does the central portion of the coastline between two such noted localities as the Isle of Portland and the Isle of Wight, and embracing on its landward side a portion of the extensive heath district in which a great part of the New Forest itself may not improperly be included, it can hardly fail to be rich in variety of insect life. In spite of the small extent of its area, its greatest dimensions being only 12 miles in length by 10 miles in breadth, it presents geologically a series of strata seldom met with in such a limited space; the Kimmeridge Clay and the Oolite are followed by the Purbecks, the Hastings Sands, the Gault, the Green Sand, the Chalk, and the Tertiaries in quick succession, and as a natural consequence the Flora bears a very varied character, for it will be found, though many plants are common to all, that every series of strata has its own peculiar botany.*

The island is divided naturally into two parts by the long range of chalk hills which stretches from the Old Harry Rock to the coast at Worbarrow. To the south of this range the country

* See Purbeck Society Papers, 1855.

Fig 1



Nat size

Fig 2



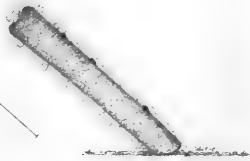
Nat size.

Fig 2a



Nat size

Fig 3a.



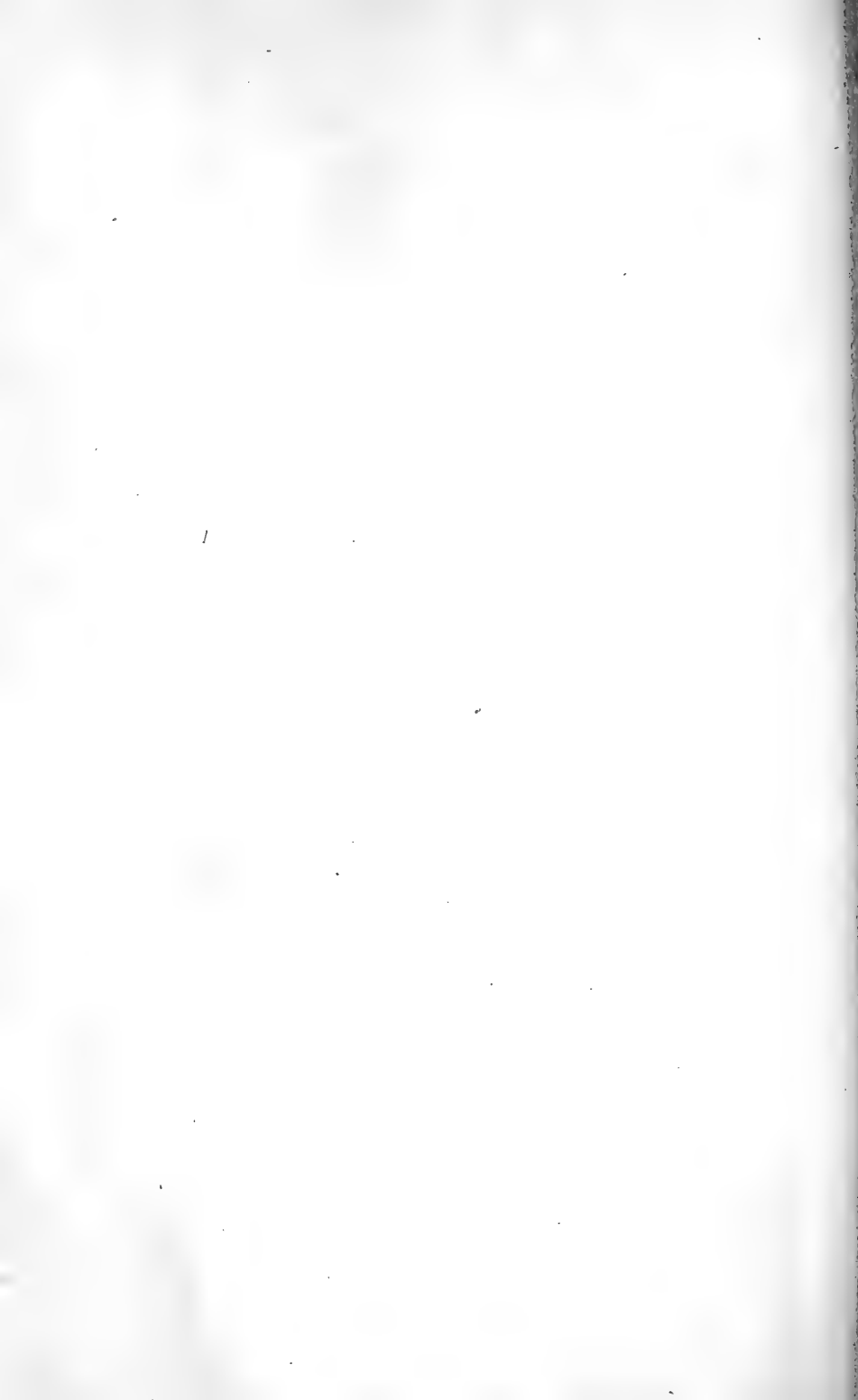
Nat size

Fig 3.



Nat width

- Fig 1 Nephopteryx genistella. Dup
- " 2, 2a Coleophora anenella Wk.
- " 3, 3a " coryzae Zell.



is for the most part rich and fertile, and affords good arable land as well as fine pasture, while to the north it is open and shews an extensive tract of barren heath. The wooded parts of the island are few and isolated, and, with the exception of several fir plantations, lie mostly on the chalk range or to the south of it; owing to the scarcity of several trees such as the beech and larch, the insects specially attached to them occur but sparingly, or not at all.

Of the insect tribe the Lepidoptera alone have received special attention, and even in this order much still remains to be done; the more wooded parts of the island as well as the wet meadow land near Wareham being practically unexplored.

It will be noticed in the following list that the Noctuæ, and the two genera *Lithocolletis* and *Nepticula*, are very imperfectly worked out, and no doubt by systematic search many more might be added to the number already recorded. Four species of the genus *Coleophora* comparatively new to the British list have been observed, viz., *ahenella*, *potentillæ*, *conyzæ*, and *obtusella*.

Roughly dividing the island into five districts, it may be of interest to mention briefly the more noticeable representatives of the Lepidoptera of each. *The Heath* district, including the heaths, bogs, and isolated plantations, is perhaps the most interesting as shewing its close connection with the New Forest. Not only do such species as *Eulepia cribrum*, *Ephyra orbicularia*, *Acidalia straminata*, *Crambus adipellus*, and many other insects, which would naturally be looked for, occur, but also the very unexpected *Eupæcilia ambiguana*, and *Coleophora ahenella*. *Gelechia oblitella* should be specially noticed as an inhabitant of this district, as it has hitherto been supposed to be confined to the fens of Cambridgeshire and Norfolk. *The Sandhills* produce the usual Lepidoptera of such localities, and may be passed over without further comment. The downs and cliffs of *the chalk and limestone ranges* and *the Kimmeridge coastline* on the other hand afford many species of interest, among which may be mentioned *Hesperia Actæon*, the "Lulworth Skipper," which has here made its headquarters and is widely distributed, occur.

ring generally in abundance wherever its foodplant *Brachypodium pinnatum* is found: it is common to both these districts, while *Lycæna Adonis* and *Botys flavalis* appear to be confined to the chalk, and *Odontia dentalis* to the Kimmeridge Clay. The wooded district remains, as has been said, almost unexplored, but *Epunds nigra* occurs at sugar, whilst *Ebulea stachydalis* and the rare *Pterophorus punctidactylus* are found on *Stachys sylvatica*.

We take this opportunity of acknowledging the kind assistance of Mr. T. Parmiter, formerly of Kimmeridge, to whom we are indebted for much valuable information with regard to those Macrolepidoptera observed by him in the western parts of the island.

We regret that owing to the limited space allotted to us no particulars as to the life history of any of the species can be given, but anyone desirous of further information can find it, as well as figures, and descriptions, and synonyms of the species, in the following works among others: Westwood and Humphrey's *British Butterflies and Moths*; Stainton's *Manual of British Butterflies and Moths*; Wood's *Index Entomologicus*; Newman's *Illustrated History of British Butterflies*, and *Illustrated Natural History of British Moths*; Stainton's *Natural History of the Tineina*; Morris' *History of British Butterflies and Natural History of British Moths*; Wilkinson's *British Tortrices*.

In conclusion it must be stated that the later edition of Doubleday's List, as published by Mr. Merrin, of Gloucester, has been followed, as being the one most generally known, though its great imperfections are only too manifest.

ABBREVIATIONS.—The Abbreviations used of the Nomenclators' names are as follows:—*B.* Boisduval, *Ben* Bentley, *Bjer.* Bjerkander, *Bk.* Borkhausen, *Bou.* Bouché, *Br.* Bruand, *C.* Curtis, *Clk.* Clerck, *D.* Duponchel, *Db.* Doubleday, *Dg.* Douglas, *Don.* Donovan, *E.* Esper, *Ed.* Edleston, *F.* Fabricius, *Fisch.* Dr. F. Fischer, *Fors.* Forster, *F. R.* Fischer E. Von Rolerstamm, *Frr.* Freyer, *Fro.* Frolich, *Fu.* Fuesly, *G.* Guenée, *Gm.* Germar, *Go.* Goetze, *H.* Hubner, *Hey.* Heyden, *Hf.* Hufnagel, *Hml.* Hummel, *H. S.* Herrich Schaffer, *Hw.* Haworth, *Kol.* Kollar, *L.* Linné, *Lch.* Leach, *Lo.* Lozan, *Ls.* Laspeyres, *Lt.* Latreille, *M.* Maan, *O.* Ochseneimer, *P.* Panzer, *S.* Scopoli, *S. V.* Systematisches Verzeichniss der Wiener Gegend, *Schl.* Schlager, *Si.* Siroom, *Sk.* Schrank, *Ss.* Stephens, *Stn.* Stainton, *Tengs.* Tengstrom, *Thnb.* Thunberg, *Ti.* Tischer, *Tr.* Treitsche, *V.* Vieweg, *Va.* Vaughan, *Vill.* de Villers, *Wk.* Wocke, *Wlk.* Wilkinson, *Z.* Zeller, *Zk.* Zinchen, *Ztt.* Zetterstedt.

DIURNI.

PIERIDÆ.

LEUCOPHASIA, *Ss.*

LEUCOPHASIA SINAPIS, L., taken by Mr. Parmiter at Creech Grange.

PIERIS, *Sz.*

PIERIS BRASSICÆ, L., abundant.

„ RAPÆ, L., abundant.

„ NAPI, L., abundant.

ANTHOCHARIS, *B.*

ANTHOCHARIS CARDAMINES, L., generally distributed.

RHODOCERIDÆ.

GONOPTERYX, *L.*

GONOPTERYX RHAMNI, L., generally common.

COLIAS, *F.*

COLIAS EDUSA, F., plentiful in some seasons; scarce, or entirely absent, in others.

„ HYALE, L., two specimens taken on the Kimmeridge coast by Mr. Parmiter; one seen at Corfe.

VANESSIDÆ.

ARGYNNIS, *F.*

ARGYNNIS PAPHIA, L., one taken at Corfe.

„ AGLAIA, L., occurs locally on the chalk range.

„ LATONA, L., the capture of two specimens at Swanage in the summer of 1852 is recorded in Newman's "British Butterflies" on the authority of Mr. Henry Reeks.

„ EUPHROSYNE, L., West Whiteway.

MELITÆA, *F.*

MELITÆA ARTEMIS, S.V., West Whiteway; scarce.

VANESSA, *F.*

- VANESSA URTICÆ, L., generally common.
 ,, POLYCHLOROS, L., Studland, Corfe, Kimmeridge; not
 common.
 ,, IO, L., common.
 ,, ATALANTA, L., common.
 ,, CARDUI, L., common in most seasons.

ARGE, *B.*

- ARGE GALATEA, L., abundant on the chalk range.

SATYRUS, *F.*

- SATYRUS ÆGERIA, L., generally distributed.
 ,, MEGÆRA, L., abundant.
 ,, SEMELE, L., common.
 ,, JANIRA, L., very abundant.
 ,, TITHONUS, O., abundant.
 ,, HYPERANTHUS, L., Encombe; one specimen at Studland.

CÆNONYMPHA, *H.S.*

- CÆNONYMPHA PAMPHILUS, L., common.

THECLA, *F.*

- THECLA RUBI, L., generally distributed and not uncommon.

POLYOMMATUS, *Lt.*

- POLYOMMATUS PHLÆAS, L., generally common.

LYCÆNA, *F.*

- LYCÆNA ÆGON, S.V., common on the heaths.
 ,, AGESTIS, S.V., common on the downs.
 ,, ALEXIS, S.V., abundant.
 ,, ADONIS, S.V., plentiful on the chalk range near Corfe.
 ,, CORYDON, S., widely distributed and locally common.
 ,, ALSUS, S.V., Swanage coast.
 ,, ARGIOIUS, L., widely distributed but never very common.

SYRICTHUS, *B.*

- SYRICTHUS ALVEOLUS, H., Swanage coast, West Whiteway.

THANAOS, *B.*

THANAOS TAGES, L., common on the downs.

HESPERIA, *B.*

HESPERIA SYLVANUS, E., abundant.

„ LINEA, S. V., common.

„ ACTÆON, E., on the chalk range and Kimmeridge coast; locally common.

NOCTURNI

SPHINGIDÆ.

SMERINTHUS, *O.*

SMERINTHUS OCELLATUS, L., Studland, Corfe.

„ POPULI, L., larva common on sallows.

ACHERONTIA, *O.*

ACHERONTIA ATROPOS, L., widely distributed.

SPHINX, *O.*

SPHINX CONVULVULI, L., two specimens have occurred at Studland.

„ LIGUSTRI, L., not uncommon in the larva state.

CHÆROCAMPA, *D.*

CHÆROCAMPA CELERIO, L., one specimen taken at Encombe by Mr. Bryan Farrer.

MACROGLOSSA, *O.*

MACROGLOSSA STELLATARUM, L., common in most years.

„ FUCIFORMIS, L., Studland.

SESIDÆ.

SESIA, *F.*

SESIA ICHNEUMONIFORMIS, F., Swanage coast; amongst *Lotus corniculatus*

„ TIPULIFORMIS, L., Studland.

„ BEMBECEFIFORMIS, H., Corfe; the larva in trunks of poplars.

COSSUS, *F.*

COSSUS LIGNIPERDA, *F.*, common.

HEPIALUS, *F.*

HEPIALUS HECTUS, *L.*, common.

„ LUPULINUS, *L.*, common.

„ SYLVINUS, *L.*, Studland.

„ HUMULI, *L.*, abundant.

ZYGÆNIDÆ.

ZYGÆNA, *F.*

ZYGÆNA TRIFOLII, *E.*, Studland, Swanage coast.

„ FILIPENDULÆ, *L.*, abundant.

NOLIDÆ.

NOLA, *Lch.*

NOLA CUCULLATELLA, *L.*, Studland, Corfe.

„ CONFUSALIS, *H.S.*, Studland, Corfe ; occurs occasionally.

LITHOSIDÆ.

NUDARIA, *Ss.*

NUDARIA SENEX, *H.*, Studland, in boggy places.

„ MUNDANA, *L.*, generally distributed and rather common.

CALLIGENIA, *D.*

CALLIGENIA MINIATA, *Forst.*, widely distributed and not uncommon.

LITHOSIA, *F.*

LITHOSIA MESOMELLA, *L.*, Studland ; on the heath.

„ AUREOLA, *H.*, Studland ; scarce.

„ LURIDEOLA, *Tr.*, not uncommon.

„ GRISEOLA, *H.*, Corfe ; plentiful.

„ STRAMINEOLA, *Db.*, Corfe, Kimmeridge ; very local, but common where it occurs.

„ QUADRA, *L.*, widely distributed but always scarce.

„ RUBRICOLLIS, *L.*, Studland.

EULEPIA, *C.*

EULEPIA CRIBRUM, *L.*, Studland heath ; rare.

EUCHELIDÆ.

DEIOPEIA, *Ss.*

- DEIOPEIA PULCHELLA, L., one specimen taken near Corfe by
Mr. W. Brinkley in 1874 or 1875.
,, JACOBÆ, L., common everywhere amongst ragwort.

CHELONIDÆ.

EUTHEMONIA, *S.*

- EUTHEMONIA RUSSULA, L., Corfe, Studland, West Whiteway ;
occurs on the heaths.

CHELONIA, *Lt.*

- CHELONIA CAJA, L., common.
,, VILLICA, L., common.

ARCTIA, *B.*

- ARCTIA FULIGINOSA, L., Rempstone.
,, MENDICA, L., taken at Kimmeridge by Mr. Parmiter.
,, LUBRICIPEDA, L., abundant at light.
,, MENTHASTRI, S.V., abundant at light.
,, URTICÆ, E., one specimen caught at Kimmeridge by
Mr. Parmiter.

LIPARIDÆ.

LIPARIS, *O.*

- LIPARIS AURIFLUA, F., common.
,, SALICIS, L., Studland ; occasionally met with.
,, MONACHA, L., Studland ; scarce.

ORGYIA, *O.*

- ORGYIA PUDIBUNDA, L., Studland, Corfe ; common in the larva
state.
,, FASCELINA, L., Studland ; occurs on the heath.
,, ANTIQUA, L., common.

BOMBYCIDÆ.

PÆCILOCAMPA, *Ss.*

- PÆCILOCAMPA POPULI, L., Studland ; the larva on sallows.

BOMBYX, *L.*

- BOMBYX NEUSTRIA, *L.*, common.
 „ RUBI, *L.*, common on the heaths; the larva is very abundant in the autumn.
 „ QUERCUS, *L.*, common.
 „ TRIFOLII, *S.V.*, Studland heath.

ODONESTIS, *Gm.*

- ODONESTIS POTATORIA, *L.*, common.

SATURNIA, *Sk.*

- SATURNIA CARPINI, *S.V.*, occurs on the heaths.

GEOMETRÆ.

URAPTERIDÆ.

OURAPTERYX, *Lch.*

- OURAPTERYX SAMBUCATA, *L.*, generally distributed and common.

ENNOMIDÆ.

EPIONE, *D.*

- EPIONE APICIATA, *S.V.*, not uncommon.

RUMIA, *D.*

- RUMIA CRATÆGATA, *L.*, abundant.

METROCAMPA, *Lt.*

- METROCAMPA MARGARITATA, *L.*, generally distributed.

ELLOPIA, *Ss.*

- ELLOPIA FASCIARIA, *L.*, Studland, Corfe; in fir plantations.

EURYMENE, *D.*

- EURYMENE DOLOBRARIA, *L.*, Corfe; scarce.

PERICALLIA, *Ss.*

- PERICALLIA SYRINGARIA, *L.*, Studland, Kimmeridge.

SELENIA, *H.*SELENIA ILLUNARIA, *H.*, common.,, ILLUSTRARIA, *H.*, one specimen taken at Studland.ODONTOPERA, *Ss.*ODONTOPERA BIDENTATA, *L.*, Corfe, Studland ; at light.CROCALLIS, *T.*CROCALLIS ELINGUARIA, *L.*, common.ENNOMOS, *T.*ENNOMOS TILIARIA, *Bk.*, Corfe.,, EROSARIA, *S.V.*, one specimen taken at Kimmeridge by
Mr. Parmiter.,, ANGULARIA, *S.V.*, generally distributed.HIMERA, *D.*HIMERA PENNARIA, *L.*, common at light.

AMPHIDASYDÆ.

BISTON, *Lch.*BISTON HIRTARIA, *L.*, Studland.

BOARMIDÆ.

HEMEROPHILA, *Ss.*HEMEROPHILA ABRUPTARIA, *Thnb.*, Corfe, not uncommon ; Kim-
meridge.CLEORA, *C.*CLEORA LICHENARIA, *Hf.*, generally distributed and common.BOARMIA, *Tr.*BOARMIA REPANDATA, *L.*, abundant.,, *var.* CONVERSARIA, *Hb.*, occurs at Studland and Corfe.,, RHOMBOIDARIA, *S.V.*, Kimmeridge, Studland.TEPHROSIA, *B.*TEPHROSIA CONSONARIA, *H.*, one specimen caught at West
Whiteway by Mr. Parmiter.,, CREPUSCULARIA, *S.V.*, West Whiteway ; taken com-
monly by Mr. Parmiter.

GNOPHOS, *T.*

GNOPHOS OBSCURATA, S.V., common on the heaths and downs.

GEOMETRIDÆ.

PSEUDOTERPNA, *H.S.*

PSEUDOTERPNA CYTISARIA, S.V., common.

IODIS, *H.*

IODIS VERNARIA, L., not uncommon amongst *Clematis vitalba*.

„ LACTEARIA, L., abundant.

HEMITHEA, *D.*

HEMITHEA THYMIARIA, L., common.

EPHYRIDÆ.

EPHYRA, *D.*

EPHYRA PORATA, F., Corfe, Kimmeridge.

„ PUNCTARIA, L., one taken at Kimmeridge by Mr. Parmiter.

„ OMICRONARIA, S.V., common at Kimmeridge.

„ ORBICULARIA, H., Studland; occurs occasionally among
sallows.

ACIDALIDÆ.

ASTHENA, *H.*

ASTHENA LUTEATA, S.V., Swanage.

„ CANDIDATA, S.V., abundant at Kimmeridge.

ACIDALIA, *T.*

ACIDALIA SCUTULATA, S.V., common.

„ BISETATA, Hf., abundant.

„ TRIGEMINATA, Hw., common on the Kimmeridge
coast.

„ CONTIGUARIA, H., a specimen of an *Acidalia* taken by
Mr. Parmiter near Kimmeridge
was submitted to Mr. Edward
Newman, who pronounced it to be
this species.

„ INCANARIA, H., Corfe; occurs occasionally.

„ PROMUTATA, G., generally distributed, but nowhere
common.

„ STRAMINATA, T., not scarce on parts of the heaths

- ACIDALIA SUBSERICEATA, Hw., Corfe, Studland; it is found on the heaths.
 ,, REMUTATA, H., Corfe, Kimmeridge; common.
 ,, IMITARIA, H., common.
 ,, EMUTARIA, H., Studland; not uncommon in some of the bogs.
 ,, AVERSATA, L., abundant.

TIMANDRA, *B.*

- TIMANDRA AMATARIA, L., Corfe, Studland; not common.

C A B E R I D Æ .

CABERA, *Tr.*

- CABERA PUSARIA, L., Corfe, Kimmeridge, Studland; plentiful.
 ,, EXANTHEMARIA, S., abundant.

M A C A R I D Æ .

MACARIA, *C.*

- MACARIA ALTERNATA, S.V., Studland; at light. Kimmeridge.
 ,, NOTATA, L., Corfe; one specimen. Kimmeridge; taken not unfrequently by Mr. Parmiter.
 ,, LITURATA, L., rare; occurring in fir woods round Studland.

HALIA, *D.*

- HALIA VAUARIA, L., common.

F I D O N I D Æ .

PANAGRA, *G.*

- PANAGRA PETRARIA, H., abundant amongst bracken.

SCODIONA, *B.*

- SCODIONA BELGIARIA, H., on heaths; most frequently found in the larva state in March.

SELIDOSEMA, *H.*

- SELIDOSEMA PLUMARIA, S.V., the male occurs not uncommonly on the heaths.

FIDONIA, *Tr.*

- FIDONIA ATOMARIA, L., abundant on heaths and downs.
 ,, PINIARIA, L., common among Scotch firs; often comes to light.

ASPILATES, *Tr.*

ASPILATES CITRARIA, H., common on the cliffs and sands of the coast; also taken inland at Corfe.

Z E R E N I D Æ .

ABRAXAS, *Lch.*

ABRAXAS GROSSULARIATA, L., abundant.

LIGDIA, *G.*

LIGDIA ADUSTATA, S.V., Swanage coast, West Whiteway.

LOMASPILIS, *H.*

LOMASPILIS MARGINATA, L., abundant.

L I G I I D Æ .

PACHYCNEMIA, *Ss.*

PACHYCNEMIA HIPPOCASTANARIA, H., Studland, on the heath; also at light.

H Y B E R N I I D Æ .

HYBERNIA, *Lt.*

HYBERNIA RUPICAPRARIA, S.V., Studland; at light; Kimmeridge.
 ,, LEUCOPHEARIA, S.V., Studland; at light.
 ,, PROGEMMARIA, H., abundant.
 ,, DEFOLIARIA, L., common.

ANISOPTERYX, *Ss.*

ANISOPTERYX ÆSCULARIA, S.V., common.

L A R E N T I I D Æ .

CHEIMATOBIA, *Ss.*

CHEIMATOBIA BRUMATA, L., abundant.

OPORABIA, *Ss.*

OPORABIA DILUTATA, S.V., common.

LARENTIA, *Tr.*

LARENTIA DIDYMATA, L., common.

„ MULTISTRIGARIA, Hw., common at Kimmeridge. Studland; only taken at light.

„ PECTINITARIA, Fu., abundant.

EMMELESIA, *Ss.*

EMMELESIA AFFINITATA, Ss., generally distributed and not uncommon.

„ ALCHEMILLATA, L., Studland, Corfe; not uncommon.

„ ALBULATA, S.V., West Whiteway; very local, but abundant where it occurs.

„ DECOLORATA, H., common.

EUPITHECIA, *C.*

EUPITHECIA VENOSATA, F., one specimen taken at Studland.

„ PULCHELLATA, Ss., the larva is common in places on the downs.

„ CENTAUREATA, S.V., Studland.

„ SUBFULVATA, Hw., widely distributed, but nowhere common.

„ ISOGRAMMATA, Tr., common amongst clematis.

„ CASTIGATA, H., abundant at Studland, Kimmeridge coast, and Corfe.

„ ALBIPUNCTATA, Hw., Swanage coast, Corfe.

„ INDIGATA, H., Studland.

„ CONSTRICTATA, G., Corfe, Swanage coast; plentiful.

„ NANATA, H., common on the heaths.

„ SUBNOTATA, H., Studland; at flower of ragwort, also at light. Kimmeridge.

„ VULGATA, Hw., abundant.

„ MINUTATA, G., Corfe.

„ TENUIATA, H., Corfe; may be bred from sallow catkins.

„ ABBREVIATA, Ss., Studland; at light, Corfe, Kimmeridge.

„ EXIGUATA, H., Corfe, Studland.

„ PUMILATA, H., abundant in furze bushes.

„ CORONATA, H., Corfe, Studland; always scarce.

„ RECTANGULATA, L., abundant among fruit trees.

LOBOPHORA, *C.*

LOBOPHORA SEXALATA, H., Corfe, Studland; not uncommon.

„ VIRETATA, H., Corfe, Studland; rare.

„ LOBULATA, H., Corfe; not uncommon; may be taken flying round sallow bushes at night.

THERA, *Ss.*

THERA VARIATA, S.V., common in fir plantations.

YPSIPETES, *Ss.*

- YPSIPETES RUBERATA, Fr., Studland, Corfe, Kimmeridge; occasionally met with.
 ,, IMPLUVIATA, S.V., common at Kimmeridge. Studland; at light.
 ,, ELUTATA, H., abundant.

MELANTHIA, *D.*

- MELANTHIA RUBIGINATA, S.V., Studland, Corfe, occurs occasionally.
 ,, OCELLATA, L., common.

MELANIPPE, *D.*

- MELANIPPE PROCELLATA, S.V., common amongst *Clematis vitalba*.
 ,, UNANGULATA, Hw., not uncommon; Studland, West Whiteway.
 ,, RIVATA, H., generally distributed and abundant.
 ,, SOCIATA, Bk., generally distributed and abundant.
 ,, MONTANATA, S.V., common.
 ,, GALIATA, S.V., common on the chalk.
 ,, FLUCTUATA, L., abundant.

ANTICLEA, *Ss.*

- ANTICLEA RUBIDATA, S.V., generally distributed. Corfe, Kimmeridge, Studland.
 ,, BADIATA, S.V., common.
 ,, DERIVATA, S.V., generally distributed but not very common.

COREMIA, *G.*

- COREMIA PROPUGNATA, S.V., Corfe, Studland.
 ,, FERRUGATA, L., abundant.
 ,, UNIDENTARIA, Hw., common.

CAMPTOGRAMMA, *Ss.*

- CAMPTOGRAMMA BILINEATA, L., very abundant.
 ,, FLUVIATA, H., Studland; one specimen at light; also one taken at Kimmeridge by Mr. Parmiter.

PHIBALAPTERYX, *Ss.*

- PHIBALAPTERYX TERSATA, S.V., common amongst *Clematis vitalba*.
 ,, LIGNATA, H., Studland; several captured at light.
 ,, VITALBATA, S.V., Kimmeridge; a few taken by Mr. Parmiter.

SCOTOSIA, *Ss.*

- SCOTOSIA DUBITATA, L., generally distributed.
 ,, UNDULATA, L., Studland; at light.

CIDARIA, *Tr.*

- CIDARIA PSITTACATA, S.V., Studland, Corfe; not rare.
 ,, MIATA, L., Studland, Corfe, Kimmeridge; it occurs occasionally.
 ,, CORYLATA, Thnb., Studland, Kimmeridge.
 ,, RUSSATA, S.V., common.
 ,, IMMANATA, Hw., Tyneham.
 ,, SUFFUMATA, S.V., Studland.
 ,, PRUNATA, L., taken on the Swanage coast by Mr. C. W. Dale.
 ,, TESTATA, L., common on the heaths.
 ,, POPULATA, S.V., common.
 ,, FULVATA, Fors., abundant amongst *Rosa spinosissima*.
 ,, PYRALIATA, S.V., generally distributed and common.
 ,, DOTATA, L., common.

PELURGA, *H.*

- PELURGA COMITATA, L., Studland.

EUBOLIDÆ.

EUBOLIA, *D.*

- EUBOLIA CERVINARIA, S.V., Studland, Corfe; scarce.
 ,, MENSURARIA, S.V., abundant.
 ,, PALUMBARIA, S.V., common on the heaths and downs.
 ,, BIPUNCTARIA, S.V., abundant on the chalk.
 ,, LINEOLATA, S.V., Tyneham; one captured by Mr. Parmiter.

ANAITIS, *B.*

- ANAITIS PLAGIATA, L., widely distributed and not uncommon.

TANAGRA, *D.*

TANAGRA CHÆROPHYLLATA, L., Kimmeridge.

DREPANULÆ.

DREPANULIDÆ.

PLATYPTERYX, *Ls.*

PLATYPTERYX FALCULA, S.V., one larva found at Studland.

CILIX, *Lch.*

CILIX SPINULA, S.V., common at light.

PSEUDO-BOMBYCES.

DICRANURIDÆ.

DICRANURA, *Lt.*

- DICRANURA FURCULA, L., Studland ; the larva occurs on willows.
 ,, BIFIDA, H., Studland ; an empty pupa case found on poplar.
 ,, VINULA, L., not uncommon.

STAUROPUS, *Gm.*

STAUROPUS FAGI, L., one specimen captured at Kimmeridge by Mr. Parmiter.

PETASIA, *S.V.*

PETASIA CASSINEA, F., Studland ; at light.

PYGÆRIDÆ.

PYGÆRA, *O.*

PYGÆRA BUCEPHALA, L., rather common.

CLOSTERA, *Ss.*

CLOSTERA RECLUSA, S.V., generally found in the larva state on dwarf willow ; not uncommon.

NOTODONTIDÆ.

NOTODONTA, *O.*

- NOTODONTA CAMELINA, L., Corfe, West Whiteway.
 ,, DICTÆA, L., Studland; the larva found on poplar.
 ,, DICTÆOIDES, E., Studland; one larva on birch.
 ,, ZIOZAC, L., Corfe, Kimmeridge, Studland; the larva
 on poplar and willow.

NOCTUÆ.

TRIFIDÆ.

BOMBYCIFORMES.

NOCTUO-BOMBYCIDÆ.

THYATIRA, *O.*

- THYATIRA DERASA, L., occasionally met with.
 ,, BATUS, L., Corfe, West Whiteway; not uncommon.

CYMATOPHORA, *Tr.*

- CYMATOPHORA DUPLARIS, L., Kimmeridge, Studland, West
 Whiteway.
 ,, FLAVICORNIS, L., Studland.

BRYOPHILIDÆ.

BRYOPHILA, *Tr.*

- BRYOPHILA GLANDIFERA, S.V., Kimmeridge, Swanage; seldom
 met with.
 ,, FERLA, S.V., generally distributed and common.

BOMBYCOIDÆ.

ACRONYCTA, *Tr.*

- ACRONYCTA PSI, L., rather common.
 ,, ACERIS, L., two specimens taken at Kimmeridge by
 Mr. Parmiter.
 ,, MEGACEPHALA, S.V., Corfe, Kimmeridge, Studland,
 ,, LIGUSTRI, S.V., one specimen at Corfe.
 ,, RUMICIS, L., not uncommon.

GENUINÆ.

LEUCANIDÆ.

LEUCANIA, *Tr.*

- LEUCANIA CONIGERA, S.V., not uncommon.
 „ LITHARGYRIA, E., common.
 „ LITORALIS, C., Studland; on the sandhills.
 „ PUDORINA, S.V., Studland.
 „ COMMA, L., generally distributed.
 „ IMPURA, H., common.
 „ PALLENS, L., abundant.

NONAGRIA, *O*

- NONAGRIA DESPECTA, *Tr.*, Studland; plentiful in bogs on the heath.

A P A M I D Æ .

GORTYNA, *O*.

- GORTYNA FLAVAGO, S.V., Corfe.

HYDRÆCIA, *G*.

- HYDRÆCIA NICTITANS, L., generally distributed.

AXYLIA, *H*.

- AXYLIA PUTRIS, L., common.

XYLOPHASIA, *Ss*.

- XYLOPHASIA LITHOXYLEA, S.V., Corfe, Studland.
 „ SUBLUSTRIS, E., Corfe; common at sugar.
 „ POLYODON, L., abundant.
 „ HEPATICA, Clk., Corfe; common; Kimmeridge.
 DIPTERYGIA, *Ss*.
 DIPTERYGIA PINASTRI, L., Studland; at light and sugar.

LAPHYGMA, *G*.

- LAPHYGMA EXIGUA, H., one specimen taken at Studland by Mr. C. W. Dale.

HELIOPHOBUS, *B.*

HELIOPHOBUS POPULARIS, F., common at light.

„ HISPIDUS, H., taken at Swanage by Sir Christopher Lighton about the year 1845.

CHARÆAS, *Ss.*

CHARÆAS GRAMINIS, L., two specimens were taken at West Whiteway by Mr. Parmiter.

CERIGO, *Ss.*

CERIGO CYTHEREA, F., not uncommon at sugar and light.

LUPERINA, *B.*

LUPERINA TESTACEA, S.V., common at light.

„ CESPITIS, S.V., taken at Swanage about the year 1845 by Sir Christopher Lighton.

MAMESTRA, *O.*

MAMESTRA ANCEPS, H., Studland, West Whiteway.

„ BRASSICÆ, L., common.

APAMEA, *O.*

APAMEA BASILINEA, S.V., common.

„ GEMINA, H., common at West Whiteway.

„ OCULEA, F., common: the larva occurs in flower stems of *Iris fœtidissima*

MIANA, *Ss.*

MIANA STRIGILIS, L., abundant.

„ FASCIUNCULA, Hw., common.

„ LITEROSA, Hw., Corfe, Studland; the larva in flower stems of *Iris fœtidissima*.

CARADRINIDÆ.

GRAMMESIA, *Ss.*

GRAMMESIA TRILINEA, S.V., abundant at light and sugar.

„ var BILINEA, Hb., occurs at Corfe and Studland.

CARADRINA, *Tr.*

CARADRINA MORPHEUS, Hf., abundant at light.

„ BLANDA, S.V., Studland, Corfe; at light.

„ CUBICULARIS, S.V., common.

NOCTUIDÆ.

RUSINA, *Ss.*

RUSINA TENEBROSA, *H.*, common at light and sugar.

AGROTIS, *O.*

AGROTIS VALLIGERA, *S.V.*, one specimen at Studland on flower of ragwort.

„ PUTA, *H.*, Swanage coast; Corfe, at sugar; scarce.

„ SUFFUSA, *S.V.*, common at sugar.

„ SAUCIA, *H.*, abundant at sugar in some seasons.

„ SEGETUM, *S.V.*, common.

„ LUNIGERA, *Ss.*, Studland, Swanage coast; rare.

„ EXCLAMATIONIS, *L.*, abundant.

„ CORTICEA, *S.V.*, Studland.

„ CINEREA, *S.V.*, Studland; one specimen at light.

„ RIPE, *H.*, one specimen captured at Studland.

„ NIGRICANS, *L.*, Studland.

„ TRITICI, *L.*, Studland, Corfe, Kimmeridge.

„ AGATHINA, *D.*, taken on the heath between Wareham and Corfe by Mr. C. W. Dale.

„ PORPHYREA, *S.V.*, common on the heaths.

„ PRÆCOX, *L.*, Studland, Swanage coast; rare.

„ PYROPHILA, *S.V.*, one specimen captured at Studland.

„ LUCERNEA, *L.*, taken at Swanage about the year 1845 by Sir Frederick Lighton.

TRIPHENA, *O.*

TRIPHENA IANTHINA, *S.V.*, generally distributed and not scarce.

„ INTERJECTA, *H.*, generally distributed and occasionally met with.

„ SUBSEQUA, *S.V.*, one specimen taken at Studland; and another at Kimmeridge by Mr. Parmiter.

„ ORBONA, *Hf.*, common.

„ PRONUBA, *L.*, abundant.

NOCTUA, *L.*

NOCTUA GLAREOSA, *E.*, one specimen captured at Kimmeridge by Mr. Parmiter; also taken at Swanage about the year 1845 by Sir Frederick Lighton.

„ PLECTA, *L.*, common. A freshly emerged specimen was taken at sallow bloom at Corfe on April 16, 1881.

- NOCTUA CNIGRUM, L., not uncommon.
 „ BRUNNEA, S.V., occasionally met with at Kimmeridge.
 „ FESTIVA, S.V., not uncommon.
 „ RUBI, V., common at ivy, light, and sugar.
 „ NEGLECTA, H., one captured at West Whiteway by Mr. Parmiter.
 „ XANTHOGRAPHIA, S.V., common.

ORTHOSIDÆ.

TRACHEA, H.

- TRACHEA PINIPERDA, P., common in fir plantations.

TÆNIOCAMPA, G.

- TÆNIOCAMPA GOTHICA, L., abundant at light and sallow bloom.
 „ RUBRICOSA, S.V., generally distributed; at light and sallow bloom.
 „ INSTABILIS, S.V., generally distributed; at light and sallow bloom.
 „ STABILIS, S.V., abundant at light and sallow bloom.
 „ GRACILIS, S.V., Corfe, Kimmeridge; at sallow bloom.
 „ MINIOSA, S.V., one taken at Kimmeridge by Mr. Parmiter.
 „ MUNDA, S.V., moderately common at Kimmeridge.
 „ CRUDA, S.V., common at light and sallow bloom.

ORTHOSIA, Tr.

- ORTHOSIA LOTA, L., abundant at sugar.
 „ MACILENTA, H., occurs at ivy bloom and sugar.

ANCHOCELIS, G.

- ANCHOCELIS RUFINA, L., Corfe.
 „ PISTACINA, S.V., very abundant at sugar; also at light.
 „ LUNOSA, Hw., Corfe; at sugar.

CERASTIS, O.

- CERASTIS VACCINII, L., abundant at ivy, light, and sugar.
 „ SPADICEA, G., abundant at ivy, light, and sugar.

SCOPELOSOMA, C.

- SCOPELOSOMA SATELLITIA, L., common at ivy, light, and sugar.

DASYCAMPA, *G.*

DASYCAMPA RUBIGINEA, S.V., one specimen taken at ivy bloom at Corfe; and another at sallow bloom at Kimmeridge by Mr. Parmiter.

XANTHIA, *O.*

XANTHIA CERAGO, S.V., Corfe; bred plentifully from sallow catkins.
 ,, SILAGO, H., Corfe; bred plentifully from sallow catkins.
 ,, FERRUGINEA, S.V., common at Kimmeridge and Corfe.

COSMIDÆ.

COSMIA, *O.*

COSMIA TRAPEZINA, L., common.
 ,, AFFINIS, L., Studland, Corfe; not common.

HADENIDÆ.

DIANTHÆCIA, *B.*

DIANTHÆCIA CARPOPHAGA, Bk., one specimen captured at West Whiteway.
 ,, CAPSINCOLA, S.V., Studland.

EPUNDA, *D.*

EPUNDA NIGRA, Hw., Corfe; taken annually at sugar.
 ,, VIMINALIS, F., Studland.

MISELIA, *Ss.*

MISELIA OXYACANTHÆ, L., common at light and sugar.

AGRIOPIS, *B.*

AGRIOPIS APRILINA, L., occasionally found at sugar and ivy bloom.

PHLOGOPHORA, *O.*

PHLOGOPHORA METICULOSA, L., abundant.

EUPLEXIA, *Ss.*

EUPLEXIA LUCIFARA, L., generally distributed.

APLECTA, *G.*

- APLECTA HERBIDA, S.V., Corfe; one specimen at light.
 ,, NEBULOSA, Hf., Corfe; at sugar.

HADENA, *O.*

- HADENA DENTINA, S.V., abundant.
 ,, CHENOPODII, S.V., Corfe.
 ,, OLERACEA, L., common.
 ,, PISI, L., Studland.
 ,, THALASSINA, Bk., generally distributed.
 ,, CONTIGUA, S.V., one captured at Studland.

XYLLINIDÆ.

XYLOCAMPA, *G.*

- XYLOCAMPA LITHORIZA, Bk., common.

CALOCAMPA, *Ss.*

- CALOCAMPA VETUSTA, H., widely distributed, occurring occasionally at sugar.
 ,, EXOLETA, L., widely distributed, occurring occasionally at sugar.

XYLINA, *Tr.*

- XYLINA RHIZOLITHA, S.V., common.
 ,, SEMIBRUNNEA, Hw., a few have been taken at Kimmeridge.
 ,, PETRIFICATA, S.V., Corfe, Kimmeridge; plentiful in some years.

CUCULLIA, *Sk.*

- CUCULLIA VERBASCI, L., common in the larva state.

HELIOTHIDÆ.

HELIOTHIS, *O.*

- HELIOTHIS MARGINATA, F., not rare in the larva state on rest-harrow.
 ,, PELTIGERA, S.V., one specimen bred from a larva found on the Swanage coast.

ANARTA, *Tr.*

ANARTA MYRTILLI, L., occurs on the heaths.

HELIODES, *G.*

HELIODES ARBUTI, F., Corfe.

ANTHOPHILIDÆ.

HYDRELIA, *G.*

HYDRELIA UNCA, S.V., Studland; common in some of the bogs.

MICRA, *G.*

MICRA OSTRINA, H., one beautiful specimen taken on the Swanage coast on August 21st, 1880.

PLUSIDÆ.

ABROSTOLA, *O.*

ABROSTOLA URTICÆ, H., widely distributed, but not common.

,, TRIPLASTA, L., widely distributed, but not common.

PLUSIA, *Tr.*

PLUSIA CHRYSITIS, L., generally distributed.

,, IOTA, L., Studland, Kimmeridge.

,, V. AUREUM, G., Studland.

,, GAMMA, L., abundant.

GONOPTERIDÆ.

GONOPTERA, *Lt.*

GONOPTERA LIBATRIX, L., common.

INTRUSÆ.

AMPHIPYRA, *Tr.*

AMPHIPYRA PYRAMIDEA, L., one taken at Tynemouth by Mr. Parmiter.

,, TRAGOPOGONIS, L., common.

MANIA, *Tr.*

MANIA MAURA, L., common.

TOXOCAMPIDÆ.

TOXOCAMPA, *G.*

TOXOCAMPA PASTINUM, *Tr.*, taken at Swanage by Mr. A. F. Griffith in 1880.

STILBIDÆ.

STILBIA, *Ss.*

STILBIA ANOMALA, *Hw.*, taken on the heath between Wareham and Corfe by Mr. C. W. Dale.

LIMBATÆ.

CATOCALA, *O.*

CATOCALA NUPTA, *L.*, two specimens taken at Corfe, and one at Kimmeridge.

SERPENTINÆ.

EUCLIDIA, *Tr.*

EUCLIDIA MI, *L.*, fairly common.

„ GLYPHICA, *L.*, common at West Whiteway.

PHYTOMETRA, *Hw.*

PHYTOMETRA ÆNEA, *S.V.*, common on heaths and downs.

DELTOIDES.

HYPENIDÆ.

HYPENA, *Tr.*

HYPENA PROBOSCIDALIS, *L.*, generally distributed and common.

„ ROSTRALIS, *L.*, Studland Rectory, Corfe.

HYPENIDES, *G.*

HYPENIDES COSTÆSTRIGALIS, *Ss.*, Studland; heaths and bogs; frequent at light.

SCHRANKIA, *H.S.*

SCHRANKIA TURFOSALIS, *Wk.*, Studland; common in the bogs.

HERMINIDÆ.

RIVULA, *G.*

RIVULA SERICEALIS, *S.*, Studland and Corfe.

HERMINIA, *Tr.*

- HERMINIA BARBALIS, L., Studland; one specimen at light.
 ,, TARSIPENNALIS, Tr., generally distributed.
 ,, GRISEALIS, S.V., generally distributed

AVENTIÆ.

AVENTIDÆ.

AVENTIA, *D.*

- AVENTIA FLEXULA, F., Studland and Corfe; not common; most frequent at light.

PYRALIDES.

SQUAMOSÆ.

ODONTIA, *D.*

- ODONTIA DENTALIS, S.V., Kimmeridge coast; among Viper's bugloss.

PYRALIDÆ.

PYRALIS, *L.*

- PYRALIS FIMBRIALIS, S.V., Corfe; at light.
 ,, FARINALIS, L., Studland, Kimmeridge, Corfe.

AGLOSSA, *Lt.*

- AGLOSSA PINGUINALIS, L., common.

CLEDEOBIDÆ.

CLEDEOBIA, *Ss.*

- CLEDEOBIA ANGUSTALIS, S.V., frequent on downs and heaths.

LURIDÆ.

PYRAUSTA, *Sz.*

- PYRAUSTA PUNICEALIS, S.V., common on the downs.
 ,, PURPURALIS, L., common on downs and boggy heaths.
 ,, OSTRINALIS, H., on the downs.

HERBULA, *G.*

- HERBULA CESPITALIS, S.V., common on downs and heaths.

ENNYCHIA, *Tr.*

ENNYCHIA CINGULALIS, L., frequent on the downs.

ASOPIDÆ.

ENDOTRICHA, *Z.*

ENDOTRICHA FLAMMEALIS, S.V., abundant on the heaths.

STENIADÆ.

STENIA, *G.*STENIA PUNCTALIS, S.V., Swanage coast, Studland; the larv^a
feeding under stones on grass and
moss.

HYDROCAMPIDÆ.

PARAPONYX, *Ss.*

PARAPONYX STRATIOTALIS, L., Corfe.

HYDROCAMPA, *Lt.*

HYDROCAMPA NYMPHEALIS, L., common.

,, STAGNALIS, Don., Corfe.

BOTYDÆ.

BOTYS, *Lt.*

BOTYS FLAVALIS, S.V., Swanage coast, Ulwell; very local.

,, VERTICALIS, S.V., common.

,, FUSCALIS, S.V., Studland.

,, ASINALIS, H., Swanage coast, Studland; among madder.

,, URTICALIS, L., common.

EBULEA, *G.*

EBULEA CROCEALIS, H., common.

,, VERBASCALIS, S.V., Studland, Swanage coast; among
Teucrium scorodonia.

,, SAMBUCALIS, S.V., common.

,, * STACHYDALIS, Zk., Studland, Corfe; among *Stachys*
sylvatica; frequent at light.PIONEA, *G.*

PIONEA FORFICALIS, L., common.

* Recorded in the Entomologists' Monthly Magazine, vol. xii., p. 153.

SPILODES, *G.*

SPILODES CINCTALIS, Tr., one specimen near Swanage.

SCOPULA, *Sk.*

SCOPULA OLIVALIS, S.V., common.

„ PRUNALIS, S.V., common.

„ FERRUGALIS, H., common.

SCOPARIIDÆ.

STENOPTERYX, *G.*

STENOPTERYX HYBRIDALIS, H., abundant.

SCOPARIA, *Hw.*

SCOPARIA AMBIGUALIS, Tr., common.

„ DUBITALIS, H., common.

„ MURANA, C., Studland; one specimen at light.

„ LINEOLA, C., Swanage coast; on old sloe bushes:
Corfe; on ash trunks.

„ MERCURELLA, L., common.

„ CRATÆGELLA, H., Studland, Swanage coast.

„ RESINEA, Hw., Studland, Corfe; on ash trunks, and at
light; frequent.

„ COARCTALIS, Z., Studland, Corfe; common at light.

„ PALLIDA, Ss., Studland; locally common in the bogs.

CRAMBITES.

CRAMBIDÆ.

PLATYTES, *G.*

PLATYTES CERUSSELLUS, S.V., frequent on the Swanage coast.

CRAMBUS, *F.*

CRAMBUS FALSELLUS, S.V., Studland; not rare at light.

„ PRATELLUS, Clk., common.

„ ADIPELLUS, Zk., Studland; common in the bogs in
some seasons.

„ PASCUELLUS, L., common.

„ ULIGINOSELLUS, Z., Studland, Swanage coast; locally
common.

„ PINETELLUS, L., Studland.

„ LATISTRIUS, Hw., Studland.

„ PERLELLUS, S., common.

„ WARRINGTONELLUS, Z., Studland; locally common.

„ TRISTELLUS, S.V., common.

„ INQUINATELLUS, S.V., common.

„ GENICUELLUS, Hw., common.

„ CULMELLUS, L., common.

„ HORTUELLUS, H., common.

CHILIDÆ.

SCHENOBIUS, *D.*

SCHENOBIUS FORFICELLUS, Thnb., Studland.

PHYCIDÆ.

ANERASTIA, *H.*

ANERASTIA LOTELLA, Z., Studland shore.

ILITHYA, *Lt.*

ILITHYA CARNELLA, L., Kimmeridge coast; common.

MYELOPHILA, *Tr.*

MYELOPHILA CRIBRELLA, H., noted as common on the Kimmeridge coast by Mr. Parmiter.

HOMÆOSOMA, *G.*

HOMÆOSOMA SINUELLA, F., Swanage coast; among plantain.

,, NIMBELLA, Z., Studland, Kimmeridge.

,, BINÆVELLA, H., Studland, Swanage coast; among thistles.

EPHESTIA, *G.*

EPHESTIA ELUTELLA, H., common.

CRYPTOBLABES, *Z.*

CRYPTOBLABES BISTRIGELLA, Hw., one specimen at Corfe.

NEPHOPTERYX, *Z.*

* NEPHOPTERYX GENISTELLA, D., Studland, Swanage coast; rare; beaten from furze.

* The Rev. O. P. Cambridge informs us that a very fine and well-marked specimen of this species was captured by the Rev. G. C. Green (Rector of Modbury, Devon), on the Poole sandbanks so long ago as 1859, but several authorities to whom the insect was then sent failed to identify it. A notice of this capture appeared in the "Zoologist" for 1859, p. 6791, under the name of *Phycis Contubernella* Hubner. The species is described under the name of *P. Davisellus*, in the "Entomologist," vol. v., p. 449. We have also just learnt from Mr. C. W. Dale, that he has in his cabinet a specimen of this insect, which his father, the late Mr. J. C. Dale, took on Parley heath on July 14th, 1835.

PHYCIS, *F.*

PHYCIS CARBONARIELLA, F.R., Studland; at times common among burnt furze.

„ SUBORNATELLA, Z., common on all downs.

„ ABIETELLA, S.V., Swanage coast; one perfect specimen beaten from a furze bush many miles from any firs.

PEMPELIA, *Z.*

PEMPELIA PALUMBELLA, S.V., common on all heaths.

RHODOPHŒA, *G.*

RHODOPHŒA CONSOCIELLA, H., Rempstone.

„ MARMOREA, Hw., Swanage coast; rare. Corfe.

„ SUAVELLA, Zk., Swanage coast; rare. Corfe.

MELIA, *Ss.*

MELIA SOCIELLA, L., common.

GALLERIA, *Lt.*

GALLERIA CERELLA, G., one specimen recorded from Kimmeridge by Mr. Parmiter.

MELIPHORA, *G.*

MELIPHORA ALVEARIELLA, G., Studland; at light.

TORTRICES.

CYMBIDÆ.

HALIAS, *Tr.*

HALIAS CLORANA, L., Studland.

TORTRICIDÆ.

SAROTHRIPA, *C.*

SAROTHRIPA REVAYANA, S.V., Studland, Corfe.

TORTRIX *L.*

TORTRIX PODANA, S., common.

„ XYLOSTEANA, H., Corfe, Rempstone; common.

„ ROSANA, L., common.

„ HEPARANA, S.V., Studland.

„ RIBEANA, H., common.

- ,, CORYLANA, H., Studland, Corfe.
 ,, UNIFASCIANA, D., Studland and Swanage coast.
 ,, COSTANA, S.V., Stoborough, by the river side.
 ,, VIBURNANA, S.V., common among bog myrtle.
 ,, VIRIDANA, L., common among trees.
 ,, MINISTRANA, L., common.
 ,, FOSTERANA, F., Studland, Corfe; common amongst ivy.

GENECTRA, G.

- GENECTRA PILLERIANA, S.V., Studland; one specimen on the open heath.

LEPTOGRAMMA, C.

- LEPTOGRAMMA LITERANA, L., Corfe.
 ,, SCABRANA, F., Studland.
 ,, var. BOSCANA F., Studland; rare.

PERONEA, C.

- PERONEA MIXTANA, H., abundant on all the heaths.
 ,, SCHALLERIANA, L., Studland.
 ,, COMPARANA, H., Studland; on heaths and among sallows.
 ,, CALEDONIANA, Ben., Studland; among *Myrica gale* and dwarf sallows.
 ,, VARIEGANA, S.V., common.
 ,, CRISTANA, S.V., one specimen in the garden at Studland Rectory.
 ,, HASTIANA, L., common among dwarf sallows.
 ,, TRISTANA, H., common among *Viburnum lantana*.
 ,, ASPERSANA, H., heaths and downs.

TERAS, Tr.

- TERAS CAUDANA, F., Corfe, Studland; common among sallows.
 ,, CONTAMINANA, H., common.

DICTYOPTERYX, Ss.

- DICTYOPTERYX LEFLINGIANA, L., common among oaks.
 ,, HOLMIANA, L., common.
 ,, BERGMANNIANA, L., abundant.
 ,, FORSKALEANA, L., common among maple.

ARGYROTOXA, Ss.

- ARGYROTOXA CONWAYANA, F., common.

PTYCHOLOMA, *Ss.*

PTYCHOLOMA LECHEANA, L., Studland, Corfe.

PENTHINIDÆ.

DITULA, *Ss.*

DITULA SEMIFASCIANA, Hw., Studland; among shallows.

PENTHINA, *Tr.*

PENTHINA SORORCULANA, Ztt., Studland.

,, PRUNIANA, H., common.

,, OCHROLEUCANA, H., Studland.

,, CYNOSBANA, L., Studland.

,, GENTIANANA, H., Swanage and Kimmeridge coast,
Corfe; common.

,, SELLANA, H., Swanage coast, on the downs; local.

,, MARGINANA, Hw., Corfe; very local.

ANTITHESIA, *G.*

ANTITHESIA SALICANA, G., Studland.

SPILONOTIDÆ.

SPILONOTA, *C.*

SPILONOTA OCELLANA, S.V., common.

,, DEALBANA, Frol., common.

,, NEGLECTANA, D., Studland; among shallows.

,, SUFFUSANA, Kol., common.

,, ROSÆCOLANA, Db., common.

,, ROBORANA, S.V., common.

PARDIA, *G.*

PARDIA TRIPUNCTANA, S.V., common.

SERICORIDÆ.

ASPIS, *Tr.*

ASPIS UDMANNIANA, L., common.

SERICORIS, *Tr.*

SERICORIS LITTORANA, C., Swanage coast; among seapink.

,, CESPITANA, H., Swanage coast.

,, LACUNANA, S.V., common.

,, URTICANA, H., common.

EUCHROMIA, *Ss.*

EUCHROMIA PURPURANA, Hw., Corfe, Swanage coast.

ORTHOTÆNIA, *Ss.*

ORTHOTÆNIA ANTIQUANA, H., Corfe, Studland; rare.

„ STRIANA, S.V., common on the downs.

„ ERICETANA, Ben., Studland; rare and local.

SCIAPHILIDÆ.

PHTHEOCHROA, *Ss.*

PHTHEOCHROA RUGOSANA, H., Corfe.

CNEPHASIA, *C.*

CNEPHASIA POLITANA, Hw., Studland; common among *Myrica gale*.

„ MUSCULANA, H., common.

SCIAPHILA, *Tr.*

SCIAPHILA SUBJECTANA, G., common.

„ VIRGAUREANA, Tr., common.

„ PASIVANA, H., Swanage coast.

SPHALEROPTERA, *S.*

SPHALEROPTERA ICTERICANA, Hw., Studland, Swanage coast.

CLEPSIS, *S.*

CLEPSIS RUSTICANA, Tr., Studland; in rushy fields.

GRAPHOLITHIDÆ.

BACTRA, *Ss.*

BACTRA LANCEOLANA, H., abundant.

PHOXOPTERYX, *G.*

PHOXOPTERYX UNCANA, H., Studland; among willows.

„ BIARCUANA, Ss., Studland.

„ INORNATANA, H.S., Studland; on heaths among
Salix fusca.

„ COMPTANA, Fro., common on the downs.

„ LUNDANA, F., Godlingstone.

„ DIMINUTANA, Hw., Studland, Corfe; among sal-
lows; not common.

GRAPHOLITHA, *Tr.*

- GRAPHOLITHA RAMANA, L., Studland; common.
 ,, NISANA, L., Studland, Corfe; among willows and
 furze.
 ,, NIGROMACULANA, Hw., Studland; at light.
 ,, CAMPOLILIANA, S.V., common.
 ,, TRIMACULANA, Don., common among elm.
 ,, PENKLERIANA, S.V., Studland.
 ,, NÆVANA, H., common among hollies.

PHLÆODES, *S.*

- PHLÆODES TETRAQUETRANA, Hw., Studland.

HYPERMECIA, *S.*

- HYPERMECIA CRUCIANA, L., Studland; common among willows.

BATODES, *S.*

- BATODES ANGUSTIORANA, Hw., common.

PÆDISCA, *Tr.*

- PÆDISCA BILUNANA, Hw., Studland; among birch.
 ,, CORTICANA, S.V., Corfe, Studland.
 ,, PROFUNDANA, S.V., Studland.
 ,, SOLANDRIANA, L., Rempstone, Corfe.
 ,, SEMIFUSCANA, Hw., Studland.

EPHIPPIPHORA, *S.*

- EPHIPPIPHORA PFLUGIANA, Hw., common.
 ,, BRUNNICHIANA, S.V., Swanage coast, Corfe,
 Kimmeridge coast.
 ,, NIGRICOSTANA, Hw., Studland; rare.
 ,, POPULANA, F., Studland; not rare among willows.

SEMASIA, *S.*

- SEMASIA SPINIANA, F.R., Corfe.
 ,, RUFILLANA, Z., Studland, Swanage coast; amongst
 wild carrot.

COCCYX, *Tr.*

- COCCYX ARGYRANA, H.; not uncommon.
 ,, HERCYNIANA, Uslar., Kingston.
 ,, VACCINIANA, F.R., Studland; among bilberry; rare.

RETINIA, *S.*

RETINIA PINICOLANA, Db., Studland.

CARPOCAPSA, *Tr.*

CARPOCAPSA GROSSANA, Hw., Corfe.

,, POMONANA, L., the larva frequent in apples.

ENDOPISA, *S.*

ENDOPISA NIGRICANA, F., one specimen on the Swanage coast flying in the sunshine.

STIGMONOTA, *S.*

STIGMONOTA LEPLASTRIANA, C., Swanage and Kimmeridge coasts; the larva in young shoots and stems of wild cabbage.

,, COMPOSANA, F., Studland.

DICRORAMPHA, *S.*

DICRORAMPHA POLITANA, S.V., Studland; rare.

,, PETIVERANA, L., abundant.

,, PLUMBANA, S., Kimmeridge coast.

,, PLUMBAGANA, Tr., Swanage and Kimmeridge coasts.

,, ACUMINATANA, Z., Studland.

PYRODES, *S.*

PYRODES RHEDIANA, L., Studland.

CATOPTRIA, *S.*

CATOPTRIA ULICETANA, Hw., abundant.

,, HYPERICANA, H., Corfe.

,, FULVANA, Ss., Swanage coast, Corfe, Studland.

,, HOHENWARTHIANA, S.V., common.

PYRALOIDÆ.

CHOREUTES, *Tr.*

CHOREUTES SCINTILULANA, H., Studland; common.

XYLOPODA, *Lt.*

XYLOPODA FABRICIANA, L., abundant.

CONCHYLIDÆ.

EUPÆCILIA, *Ss.*

- EUPÆCILIA ATRICAPITANA, *Ss.*, Studland, Kimmeridge and Swanage coasts; scarce, but widely distributed.
- ” MACULOSANA, *Hw.*, Studland; common amongst wild hyacinth.
- ” AMBIGUANA, *H.*, Rempstone; the curious bottle-shaped cases of the pupæ are found attached to the stems of *Rhamnus frangula*; rare.
- ” ANGUSTANA, *H.*, common on the heaths.
- ” UDANA, *G.*, Corfe; one specimen at light.
- ” RUPICOLANA, *C.*, Studland, Swanage coast; locally common amongst hemp agrimony.
- ” ROSEANA, *Hw.*, Kimmeridge coast; common. Corfe; abundant.
- ” CILIANA, *H.*, Swanage coast, Studland; rare.

XANTHOSETIA, *Ss.*

- XANTHOSETIA ZOEGANA, *L.*, widely distributed.
- ” *var. ferrugana*, *Hw.*, Studland, Corfe; rare.
- ” HAMANA, *L.*, abundant among thistles.

CHROSIS, *G.*

- CHROSIS TESSERANA, *S.V.*, abundant on the downs.

ARGYROLEPIA, *Ss.*

- ARGYROLEPIA SUBBAUMANNIANA, *Wlk.*, Swanage coast; rare.
- ” ZEPHYRANA, *Tr.*, Swanage coast; larva in the roots of wild carrot.
- ” BADIANA, *H.*, Swanage coast, Corfe, Studland; among burdock.
- ” CNICANA, *Db.*, Studland, Corfe; among thistles in damp places.

CONCHYLIS, *Tr.*

- CONCHYLIS FRANCILLONANA, *F.*, Swanage coast; not rare.
- ” STRAMINEANA, *Hw.*, Swanage coast; very local.
- ” INOPIANA, *Hw.*, Studland, Corfe.

APHELIDÆ.

APHELIA, *C.*

- APHELIA OSSEANA, *S.*, Corfe; sometimes abundant on the downs.

TORTRICODES, *G.*

TORTRICODES HYEMANA, H., Rempstone, Corfe.

TINEÆ.

EPIGAPHIIDÆ.

LEMNATOPHILA, *Tr.*

LEMNATOPHILA PHRYGANELLA, H., Godlingstone.

,, SALICELLA, H., Studland.

DIURNEA, *Hw.*

DIURNEA FAGELLA, S.V., common.

PSYCHIDÆ.

TALÆFORIA, *Z.*

TALÆFORIA PSEUDO-BOMBYCELLA, O., Corfe, Studland.

PSYCHE, *Br.*

PSYCHE VILLOSELLA, O., Studland; the cases not rare on the heaths.

,, ROBORICOLELLA, Br., Studland; common.

PSYCHOIDES, *Br.*PSYCHOIDES VERHUELLELLA, Hey., Corfe, Swanage; bred from seed-fronds of *Asplenium rutamuraria*.

TINEIDÆ.

XYSMATODOMA, *Z.*

XYSMATODOMA ARGENTIMACULELLA, Stn., Studland. Swanage coast; the galleries of the larvæ frequent on rocks and old turf banks.

SCARDIA, *Tr.*

SCARDIA GRANELLA, L., Studland.

,, CLOACELLA, Hw., common.

,, ARCELLA, F., in old hedges; not uncommon.

TINEA, *Stn.*

- TINEA FERRUGINELLA, H., Studland, Corfe.
 ,, RUSTICELLA, H., common.
 ,, TAPETZELLA, L., common.
 ,, PELLIONELLA, L., common.
 ,, FUSCIPUNCTELLA, Hw., common.
 ,, GANOMELLA, Tr., Studland.
 ,, BISELIELLA, Hml., Studland, Corfe.
 ,, NIGRIPUNCTELLA, Hw., Corfe. Studland ; rare.
 ,, SEMIFULVELLA, Hw., Studland, Corfe ; not uncommon.

LAMPRONIA, *Z.*

- LAMPRONIA RUBIELLA, Bjer., Studland, Corfe.

INCURVARIA, *Hw.*

- INCURVARIA MASCOLELLA, S.V., common.
 ,, ZINCKENELLA, Z., Rempstone ; among birch.

MICROPTERYX, *Z.*

- MICROPTERYX CALTHELLA, L., common.
 ,, SEPPELLA, F., common.
 ,, PURPURELLA, Ss., Rempstone.
 ,, UNIMACULELLA, Ztt., Rempstone.
 ,, SUBPURPURELLA, Hw., Corfe.

NEMOPHORA, *H.*

- NEMOPHORA SWAMMERDAMELLA, L., Studland.
 ,, SCHWARZIELLA, Z., common.

YPONOMEUTIDÆ.

SWAMMERDAMIA, *Stn.*

- SWAMMERDAMIA COMPTELLA, H., Studland.
 ,, CÆSIELLA, H. (*Oxyacanthella*, Dup.), common.
 ,, GRISEOCAPITELLA, Stn., Studland and Rempstone.
 ,, PYRELLA, Vill., Studland.

YPONOMEUTA, *Lt.*

- YPONOMEUTA PLUMBELLA, S.V., Studland.
 ,, PADELLA, L., Corfe.

PEPILLA, *G.*

- PEPILLA CURTISELLA, Don., common.
var. RUSTICA, Hw., Studland, Corfe.

PLUTELLIDÆ.

PLUTELLA, *Sk.*

- PLUTELLA XYLOSTELLA, L., abundant.
 ,, PORRECTELLA, L., Studland; in gardens.

HYPOLEPIA, *G.*

- HYPOLEPIA VITTELLA, L., Studland.
 ,, RADIATELLA, Don., common.
 ,, COSTELLA, F., Studland.

HARPIPTERYX, *Tr.*

- HARPIPTERYX SCABRELLA, L., Studland; at light.
 ,, NEMORELLA, L., Studland.
 ,, HARPELLA, S.V., generally distributed.

GELECHIDÆ.

PHIBALOCERA, *Ss.*

- PHIBALOCERA QUERCELLA, F., common.

DEPRESSARIA, *Hw.*

- DEPRESSARIA COSTOSELLA, Hw., common among furze.
 ,, LITURELLA, S.V., Studland.
 ,, PALLORELLA, Z., Studland; at light.
 ,, UMBELLELLA, Ss., common among furze.
 ,, NANATELLA, Stn., common on the Swanage coast.
 ,, ARENELLA, S.V., common; the larva very frequent
 on burdock.
 ,, PROPINQUELLA, Tr., Studland, Corfe; rare.
 ,, SUBPROPINQUELLA, Stn., Studland, Corfe.
 ,, ANGELICELLA, H., Corfe, Godlingstone; common in
 the larva state.
 ,, OCELLELLA, F., Studland, Corfe.
 ,, YEATESIELLA, F., Studland, Corfe; the larva on wild
 carrot.
 ,, RHODOCHRELLA, H.S., Studland, Rempstone; the
 larva on knapweed.
 ,, APPLANELLA, F., abundant.
 ,, ROTUNDELLA, Dg., Swanage coast, Kimmeridge
 coast; the larva on wild carrot.
 ,, ALBIPUNCTELLA, H., Studland; rare. Corfe.
 ,, CHÆROPHYLLIVORELLA, Db., Studland, Swanage;
 not rare.

- „ **NERVOSELLA**, Hw., common.
 „ **BADIELLA**, H., Swanage coast, Studland, Corfe.
 the larva on the radical leaves of
 Hypochaeris radicata.
 „ **HERACLEELLA**, De Geer, Corfe, Worth, Studland.

GELECHIA, *Stn.*

- GELECHIA CINERELLA**, L., Swanage coast ; rare.
 „ **RUFESCENTELLA**, Hw., generally distributed.
 „ **GERRONELLA**, Z., Studland ; beaten from furze bushes.
 „ **POPULELLA**, L., occurs among willows.
 „ **ERICETELLA**, H., common on all heaths.
 „ **MULINELLA**, Ti., common among furze.
 „ **SORORCULELLA**, H., Studland ; among willows.
 „ **DIFFINELLA**, Hw., Kimmeridge coast, Studland, and
 Swanage coast.
 „ **TERRELLA**, S.V., common.
 „ **DESERTELLA**, Ed., common on sandy heaths.
 „ **ACUMINATELLA**, Si., Studland, and Swanage coast ;
 among thistles.
 „ **SENECTELLA**, Z., Studland, Swanage coast ; among
 thistles.
 „ **MUNDELLA**, Dg., Studland sandhills.
 „ **DOMESTICELLA**, Hw., Studland, Corfe.
 „ **PROXIMELLA**, H., Studland ; on birch trunks.
 „ **NOTATELLA**, H., Studland ; among willows.
 „ **VULGELLA**, H., Studland.
 „ **FUGITIVELLA**, Z., Studland.
 „ **COSTELLA**, Ss., frequent among *Solanum dulcamara* ;
 three broods have been observed.
 „ **TRICOLORELLA**, Hw., larva common on *Stellaria*
 holostea.
 „ **MARMORELLA**, Hw., Studland sandhills.
 „ **OBSOLETELLA**, Fisch., Swanage coast ; the larva in stems
 of *Atriplex*.
 „ **PLANTAGINELLA**, Stn., Swanage coast ; common among
 Plantago coronopus.
 „ **ATRIPLICELLA**, Fisch., Rempstone.
 „ **SEQUACELLA**, Hw., Swanage coast ; among *Helianthe-*
 mum vulgare.
 „ **NANELLA**, H., Studland ; three specimens at light, one
 on an old pear tree, and one on the
 Manor house lawn.
 „ **MOUFFETELLA**, S.V., Studland ; among honeysuckle.
 „ **DOPECELLA**, L., Studland ; among Scotch fir.

- GELECHIA TENEBRELLA, H., not rare; the larva mining the roots of *Rumex acetosella* growing on banks.
- „ TÆNIOLELLA, Tr., widely distributed.
- „ ANTHYLLIDELLA, H., very common amongst *Anthyllis*.
- „ ATRELLA, Hw., Studland; amongst *Hypericum*.
- „ BIFRACTELLA, Mann., Swanage coast; on *Conyza squarrosa*. Corfe; common amongst *Inula dysenterica*.
- „ OBLITELLA, Db., eight specimens were taken in a wet field near Studland, crawling up the stems of grasses at sunset, in July, 1884.
- „ NÆVIFERELLA, Z., Studland.
- „ ERICINELLA, Z., on heaths.
- „ INOPELLA, Z., frequent amongst *Inula dysenterica*.
- „ PAUPELLA, Z., Corfe, Kimmeridge coast, Swanage coast; amongst *Inula dysenterica*.
- „ SUBOCELLELLA, Ss., Godlingstone; among *Mentha aquatica*. Kimmeridge; amongst *Origanum vulgare*.
- „ UMBROSELLA, Z., Studland sandhills.

PARASIA, *D.*

PARASIA CARLINELLA, Dg., common on the downs.

CLEODORA, *Stn.*

CLEODORA CYTISELLA, C., Studland; among bracken.

ANARSIA, *Z.*

ANARSIA SPARTIELLA, Schlg., among furze.

PLEUROTA, *Stn.*

PLEUROTA BICOSTELLA, L., frequent on the heaths.

HARPELLA, *Schlg.*

HARPELLA GEOFFROYELLA, L., Godlingstone.

DASYCERA, *Stn.*

DASYCERA SULPHURELLA, F., common.

CECOPHORA, *Stn.*

- CECOPHORA MINUTELLA, L., Studland.
 ,, LAMBEDELLA, Don., amongst old furze bushes and old
 brambles; widely distributed.
 ,, FUSCO-AURELLA, Hw., Studland.
 ,, FUSCESCENTELLA, Hw., common.
 ,, PSEUDOSPRETELLA, Stn., very common in houses.

CECOGENIA, *G.*

- CECOGENIA KINDERMANNIELLA, Z., Studland; in houses.

ENDROSIS, *Stn.*

- ENDROSIS FENESTRELLA, S., common everywhere.

BUTALIS, *Tr.*

- BUTALIS GRANDIPENNELLA, Hw., on heaths; most common among
Ulex nana.
 ,, FUSCOENEELLA, Hw., Swanage coast; bred from larva
 on *Lotus corniculatus*.
 ,, SENESCENTELLA, Stn., Swanage coast, Corfe; not
 rare.
 ,, VARIELLA, Ss., Studland; the larva on *Erica cinerea* in long
 silken galleries below the sand in April.
 ,, INCONGRUELLA, Stn., Studland heath, Norden heath.

GLYPHIPTERYGIDÆ.

ACROLEPIA, *C.*

- ACROLEPIA GRANITELLA, Tr., common amongst *Inula dysenterica*.

GLYPHIPTERYX, *Ss.*

- GLYPHIPTERYX FUSCOVIRIDELLA, Hw., common.
 ,, THRASONELLA, S., common.
 ,, HAWORTHELLA, Ss., Studland; among cotton
 grass.
 ,, FISCHERIELLA, Z., abundant.

PERITTIA, *Stn.*

- PERITTIA OBSCUREPUNCTELLA, Stn., Corfe.

ARGYRESTHIIDÆ.

ARGYRESTHIA, *Stn.*

- ARGYRESTHIA NITIDELLA, F., common among hawthorn.
 ,, SEMITESTACELLA, C., not rare.
 ,, ALBISTRIELLA, Hw., Studland; among sloe. Corfe.
 ,, RETINELLA, Z., common among willows.
 ,, CURVELLA, L., Corfe; common.
 ,, PYGMÆELLA, H., common among willows.
 ,, GEDARTELLA, L., among birch.
 ,, BROCHELLA, H., Studland; among birch.

CEDESTIS, *Stn.*

- CEDESTIS FARINATELLA, Stn., Studland.

OCNEROSTOMA, Z.

- OCNEROSTOMA PINARIELLA, Z., Corfe; beaten out of Scotch fir.

ZELLERIA, *Stn.*

- ZELLERIA HEPARIELLA, M., Corfe; rare.

GRACILLARIIDÆ.

GRACILLARIA, Z.

- GRACILLARIA ALCHIMIELLA, S., Studland, Corfe.
 ,, STIGMATELLA, F., common among willows and
 poplars.
 ,, SEMIFASCIELLA, Hw., Rempstone.
 ,, ELONGELLA, L., bred from birch; Studland.
 ,, TRINGIPENNELLA, Z., common.
 ,, SYRINGELLA, F., common.
 ,, PHASIANIPENNELLA, H., Studland; larva on *Rumex*
acetosella.
 ,, AUROGUTTELLA, Ss., Studland, and Swanage coast.

CORISCIUM, Z.

- CORISCIUM CUCULIPENNELLA, H., Kimmeridge coast; common
 but local; the larva is found
 in cones on privet.
 ,, CITRINELLA, Fisch., Studland.

ORNIX, Z.

- ORNIX AVELLANELLA, Stn., common among nut.
 ,, ANGLICELLA, Stn., common among hawthorn.
 ,, BETULÆVORELLA, Dbl., Rempstone; bred from birch.
 ,, TORQUILELLA, Stn., among sloe.
 ,, GUTTELLA, Hw., Studland.

COLEOPHORIDÆ.

COLEOPHORA, Z.

- COLEOPHORA FABRICIELLA, Vill., Studland; at light. Corfe.
 ,, *AHENELLA, Hein., Rempstone; larva on *Rhamnus frangula*, hibernating on the stems.
 ,, POTENTILLÆ, nov. spec., Studland, Rempstone; larvæ living in families on *Potentilla* and bramble in autumn.
 ,, OCHREELLA, Hw., Swanage coast; very local.
 ,, LIXELLA, Z., Corfe; common on the downs.
 ,, PYRRHULIPENNELLA, Ti., on heaths; not common.
 ,, ALBICOSTA, Hw., common among furze.
 ,, ANATIPENNELLA, H., Studland; on plum; Godlingstone.
 ,, DISCORDELLA, Z., common on *Lotus corniculatus* and *major*.
 ,, TROGLODYTELLA, Stn., Swanage coast; common.
 ,, MURINIPENNELLA, Fisch., Studland; common in meadows.
 ,, CÆSPITITIELLA, Z., abundant.
 ,, ANNULATELLA, Tengs., Rempstone.
 ,, ARGENTULELLA, Z., the larva common on yarrow.
 ,, †CONYZÆ, Z., Swanage coast; larva on *Conyza squarrosa*.
 ,, JUNCICOLELLA, Stn., Studland; the larva on *Calluna vulgaris*.
 ,, LABICELLA, H., Studland.
 ,, OBTUSELLA, Moncreiff, Studland; larva on *Juncus maritimus*.
 ,, ALBITARSELLA, Z., Kimmeridge coast; larva on *Origanum vulgare*.
 ,, NIGRICELLA, Ss., Studland; not common.
 ,, FUSCEDINELLA, Z., common.
 ,, GRYPHIPENNELLA, Bon., Studland; not rare.
 ,, VIMINETELLA, Z., Studland; the larva on willow, but most common on *Myrica gale*.
 ,, LUTIPENNELLA, Z., Rempstone, Corfe.
 ,, LIMOSIPENNELLA, Fisch., Studland; larva on birch.

* Recorded in the Entomologists Monthly Magazine, vol. xvi., p. 165.

† Recorded in the Entomologists Monthly Magazine, vol. xii., p. 164.

Note.—A large Coleophora, nearly allied to *C. Vibicella*, came to light in July, 1878, but owing to its somewhat imperfect condition it has not been identified. C.R.D.

ELACHISTIDÆ.

BATRACHEDRA, *Stn.*

BATRACHEDRA PRÆANGUSTELLA, Hw., Studland; on willow trunks.

CHAULIODUS, *Tr.*

CHAULIODUS CHÆROPHYILLELLA, Go., Studland; not common.

„ DAUCELLA, Pey., Swanage coast; the larva occurs on wild carrot.

LAVERNA, *C.*

LAVERNA MISCELLA, S.V., Swanage coast; common amongst *Helianthemum vulgare*.

„ EPILOBIELLA, Schlg., Godlingstone.

„ OCHRACEELLA, C., Swanage coast; rare.

„ ATRA, Hw., Studland.

CHRYSOCLISTA, *Stn.*

CHRYSOCLISTA FLAVICAPITELLA, Hw., Studland; rare.

CHRYSOCORYS, *C.*

CHRYSOCORYS FESTALIELLA, H., common.

ELACHISTA, *Stn.*

ELACHISTA ATRICOMELLA, Stn., Corfe.

„ LUTICOMELLA, Z., Studland; bred from *Dactylis glomerata*.

„ STABILELLA, Stn., Swanage coast; common.

„ BEDELLELLA, Si., Swanage coast; common.

„ SUBOBSCURELLA, Db., Studland; in meadows.

„ MEGERLELLA, Z., not rare.

„ RHYNCOSPORELLA, Stn., common on boggy heaths.

„ BIATOMELLA, Stn., Swanage coast.

„ SERRICORNELLA, Lo., two specimens at Studland on a boggy heath.

„ POLLINARIELLA, Z., common on the downs.

„ RUFOCINERELLA, Hw., common.

„ SUBOCHREELLA, Db., Rempstone and Studland.

„ CYGNIPENNELLA, H., abundant.

TISCHERIA, *Z.*

TISCHERIA EMYELLA, D., common.

LITHOCOLLETIDÆ.

LITHOCOLLETIS, Z.

- LITHOCOLLETIS LANTANELLA, Schlg., the larva common on *Viburnum lantana*.
- „ QUINQUEGUTTELLA, Stn., Studland; the larva on dwarf willows.
- „ POMIFOLIELLA, Z., Studland.
- „ CORYLELLA, Ni., Godlingstone.
- „ SPINICOLELLA, Z., Studland.
- „ FAGINELLA, M., Studland.
- „ SALICICOLELLA, Si., Studland.
- „ ULMIFOLIELLA, H., Studland and Rempstone; on birch.
- „ QUERCIFOLIELLA, Z., Studland; on *Ulex*.
- „ ULICOLELLA, Va., Studland; common among furze.
- „ CRAMERELLA, F., Studland.
- „ EMBERIZÆPENNELLA, Bou., common among honeysuckle.
- „ NICELLIELLA, Z., Godlingstone; on nut.
- „ SCHREBERELLA, F., Studland; on elm bushes.
- „ TRIFASCIELLA, Hw., Studland; on honeysuckle.

LYONETIIDÆ.

LYONETIA, H.

- LYONETIA CLERCKELLA, L., Studland; the larva on apple.

PHYLLOCNISTIS, Z.

- PHYLLOCNISTIS SUFFUSELLA, Z., Studland; the larva on poplar.

CEMIOSTOMA, Z.

- CEMIOSTOMA LABURNELLA, Hey., common.
- „ SCITTELLA, Z., Studland; amongst apple.
- „ WAILESELLA, Stn., Godlingstone; the larva on *Genista tinctoria*.
- „ LOTELLA, Stn., Studland; the larva in *Lotus major* in bogs.

OPOSTEGA, Z.

- OPOSTEGA SALACIELLA, Tr., widely distributed but rare.

BUCCULATRIX, Z.

- BUCCULATRIX ULMELLA, M., Rempstone; the larva on oak.
 ,, MARITIMELLA, Stn., Swanage coast.
 ,, BOYERELLA, D., Studland; the larva common on elm.
 ,, FRANGULELLA, Go., Rempstone; among *Rhamnus frangula*.

NEPTICULIDÆ.

NEPTICULA, Z.

- NEPTICULA ANOMALELLA, Go., Studland.
 ,, SEPTEMBRELLA, Stn., Studland, and Swanage coast.
 ,, CRYPTELLA, Frr., Swanage coast; among *Lotus corniculatus*; rare. A variety with pale opposite spots on the forewing has occurred.
 ,, SUBBIMACULELLA, Hw., Rempstone.
 ,, FLOSLACTELLA, Hw., Studland.
 ,, SALICIVORELLA, Db., Studland.
 ,, MICROTHERIELLA, Wing., Studland and Godlingstone.
 ,, ARGENTIPEDELLA, Z., Rempstone and Studland.
 ,, PLAGICOLELLA, Stn., Studland.
 ,, TITYRELLA, Dg., Studland.
 ,, MARGINECOLELLA, Stn., Studland.
 ,, ÆNEOFASCIELLA, H.S., widely distributed.
 ,, ULMIVORELLA, Frr., Studland.
 ,, AURELLA, F., common.

PTEROPHORI.

PTEROPHORIDÆ.

PTEROPHORUS, *Lt.*

- PTEROPHORUS TRIGONODACTYLUS, Hw., Studland, Corfe, Swanage coast. The young larva were observed mining the rootstocks of *Tussilago farfara*.
 ,, ACANTHODACTYLUS, H., common.
 ,, PUNCTIDACTYLUS, Ss., Studland, Corfe; the larva on the flower spikes of *Stachys sylvatica*.
 ,, PARVIDACTYLUS, Hw., Swanage coast; not common.

- PTEROPHORUS LÆTUS, Z., Studland; one specimen taken in a wet meadow was pronounced by Mr. H. T. Stainton to be a pale individual of this species. The specimen is now in the cabinet of Mr. J. B. Hodgkinson, of Preston.
- „ TEUCRII, Greening, Studland, and Swanage coast; among *Teucrium Scorodonia*.
- „ PHÆODACTYLUS, H., Swanage coast; rare.
- „ SEROTINUS, Z., common.
- „ PLAGIODACTYLUS, Fisch., Studland; local and rare.
- „ ZOPHODACTYLUS, D., Studland; the larva in the seed heads of *Erythraea Centaurium*.
- „ LITHODACTYLUS, Tr., not rare amongst *Inula dysenterica*.
- „ PTERODACTYLUS, L., common.
- „ MICRODACTYLUS, H., not rare amongst *Eupatorium cannabinum*.
- „ BALIODACTYLUS, Z., Kimmeridge coast; amongst *Origanum vulgare*.
- „ TETRADACTYLUS, Z., Corfe; amongst thyme.
- „ PENTADACTYLUS, L., common.
- „ MONODACTYLUS, L., common.

ALUCITIDÆ.

ALUCITA, L.

ALUCITA POLYDACTYLA, H., abundant.

A D D E N D A .

The following additional insects, with the exception of P. Globulariæ, have been taken since the list was in type :

PROCRIDÆ.

PROCRIS, F.

PROCRIS GLOBULARIÆ, H., one specimen, now in the cabinet of Mr. C. W. Dale, was taken at Langton Matravers by Mr. Dalton Serrell, in 1853.

DIASEMIA, *Ss.*

DIASEMIA LITERALIS, S., two beautiful specimens were taken on the Swanage coast, on June 3rd, 1885.

TINEA, *Stn.*

TINEA ALBIPUNCTELLA, Hw., Corfe.

MICROPTERYX, *Z.*

MICROPTERYX THUNBERGELLA, F., Kimmeridge coast.

The following table may serve to show the number of species hitherto observed in Purbeck, as compared with the total number of species included in the British list :

	PURBECK.		BRITISH ISLES.	
DIURNI	40	..	.. 66
NOCTURNI	54	..	.. 113
GEOMETRÆ	144	..	.. 289
DREPANULÆ	2	..	.. 6
PSEUDO-BOMBYCES	11	..	.. 26
NOCTUÆ	145	..	.. 322
DELTOIDES	8	..	.. 14
AVENTLÆ	1	..	.. 1
PYRALIDES	40	..	.. 76
CRAMBITES	35 83
TORTRICES	136 342
TINEINA	245 718
PTEROPHORINA	18 35
TOTAL		<u>879</u>		<u>2,091</u>



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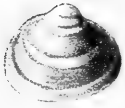
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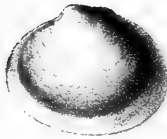
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<i>UNIO</i>	81
<i>pictorum</i>	82
<i>VALVATA</i>	86
<i>cristata</i>	86
<i>piscinalis</i>	86
<i>VERTIGO</i>	119
<i>antivertigo</i>	119
<i>edentula</i>	120
<i>minutissima</i>	120
<i>pygmæa</i>	119
<i>VITRINA pellucida</i>	103
<i>VOLUTA denticulata</i>	125
<i>ZONITES</i>	104
<i>alliaris</i>	104
<i>cellarius</i>	104
<i>crystallinus</i>	106
<i>excavatus</i>	106
<i>fulvus</i>	106
<i>nitidulus</i>	104
<i>nitidus</i>	105
<i>purus</i>	105
<i>radiatulus</i>	105
<i>ZUA lubrica</i>	124

PLATE V.

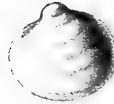
1. Sphærium corneum.
2. „ rivicola.
3. „ lacustre.
4. Pisidium amnicum.
5. „ fontinale.
6. „ pusillum.
7. „ nitidum.
8. „ roseum.
9. Unio pictorum.
10. Anodonta cygnea.
11. „ anatina.



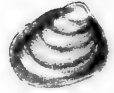
1.



2.



3.



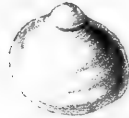
4.



6.



5.



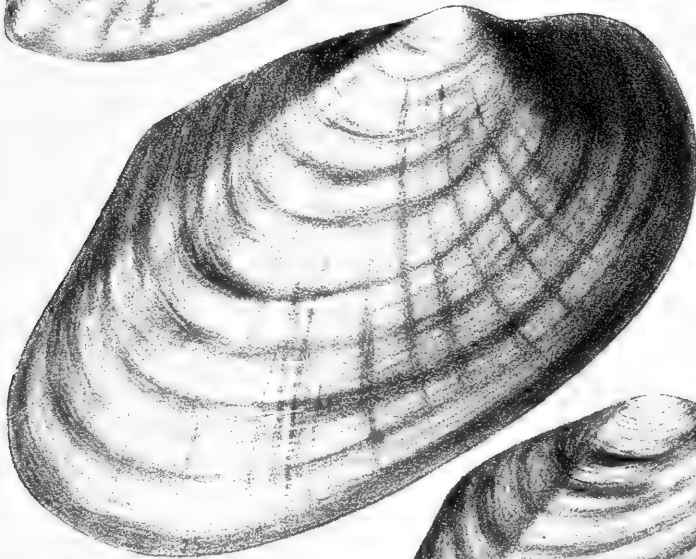
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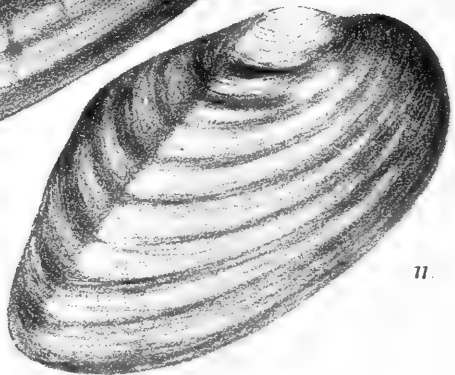
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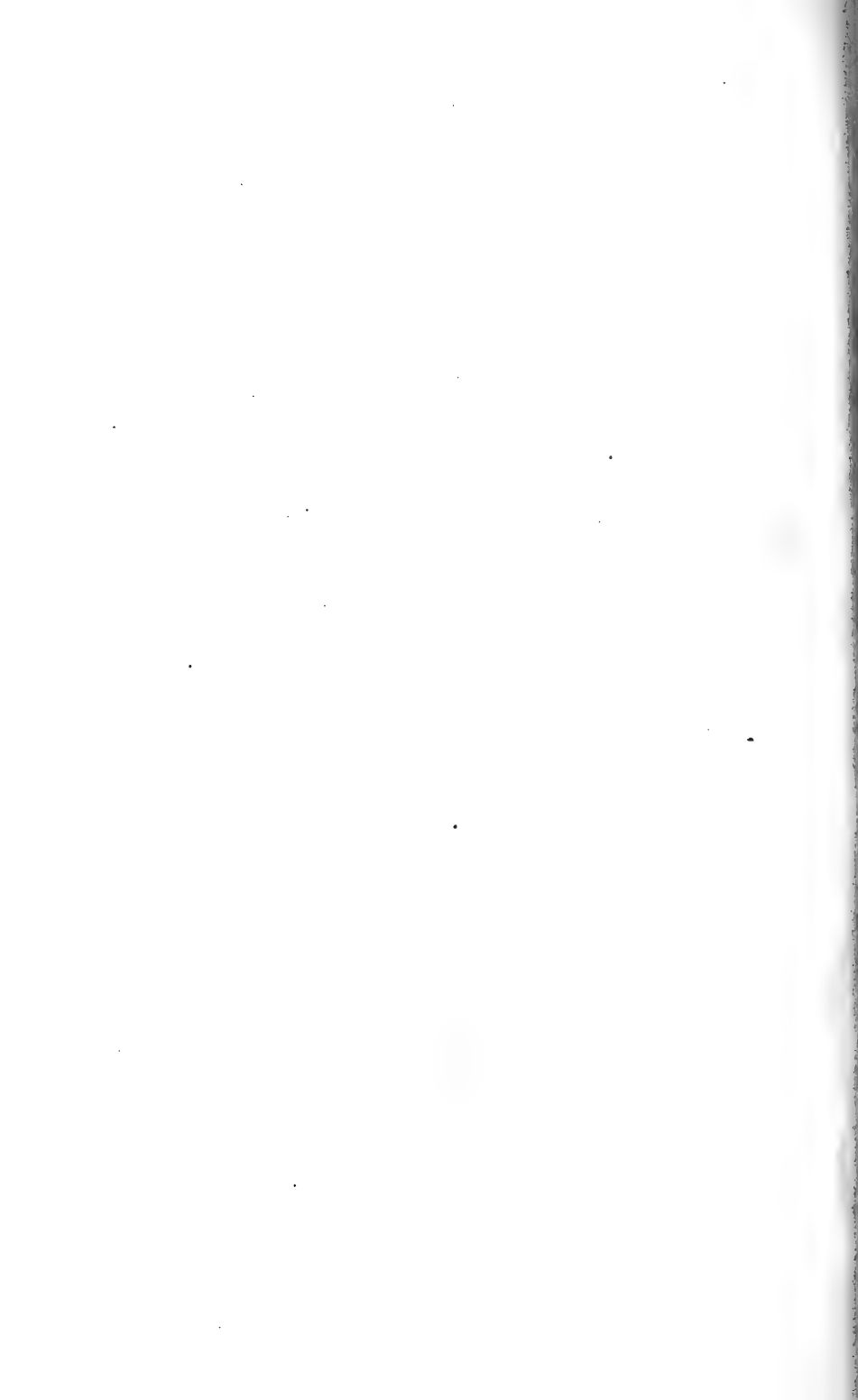
9.



10.



11.



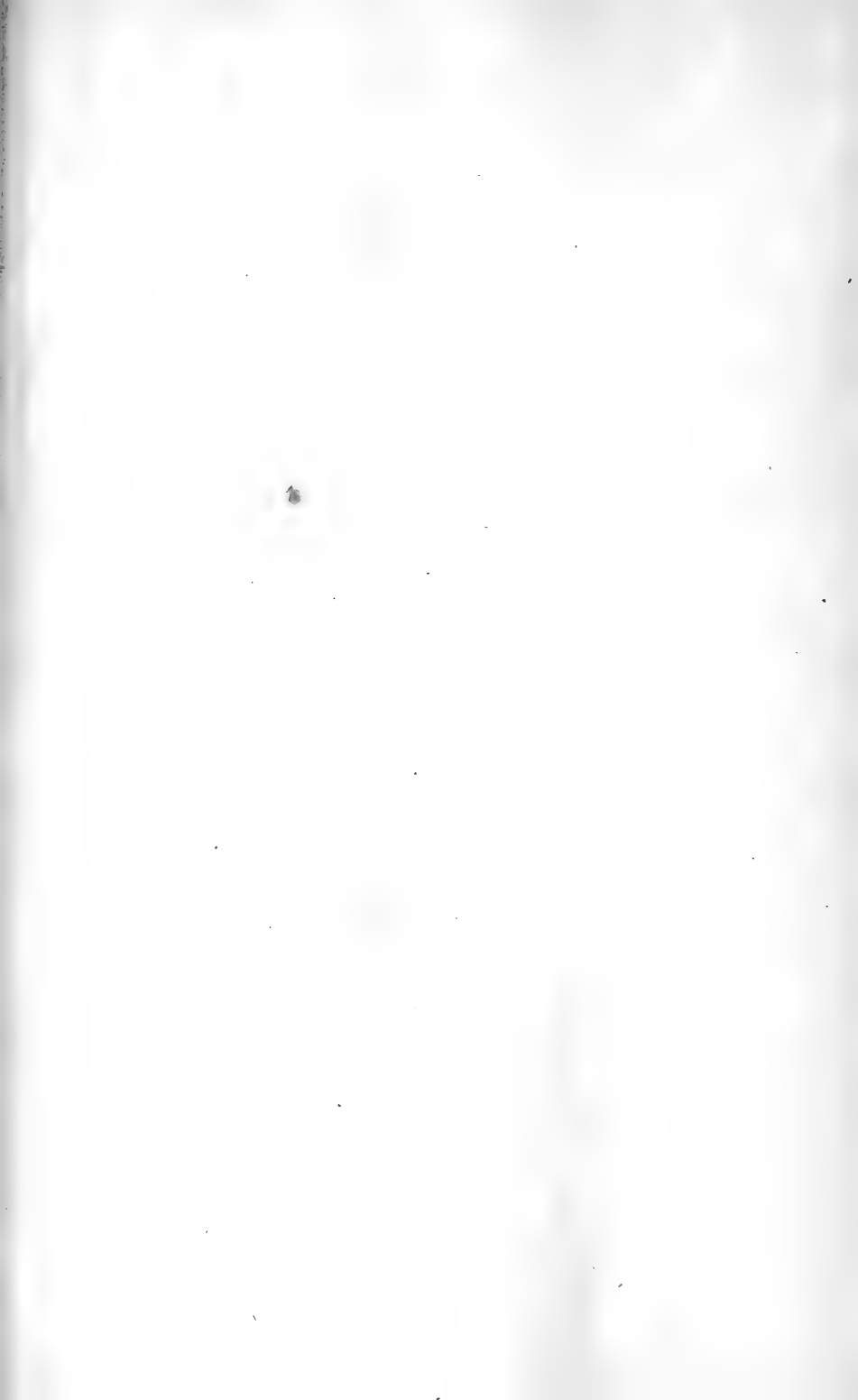
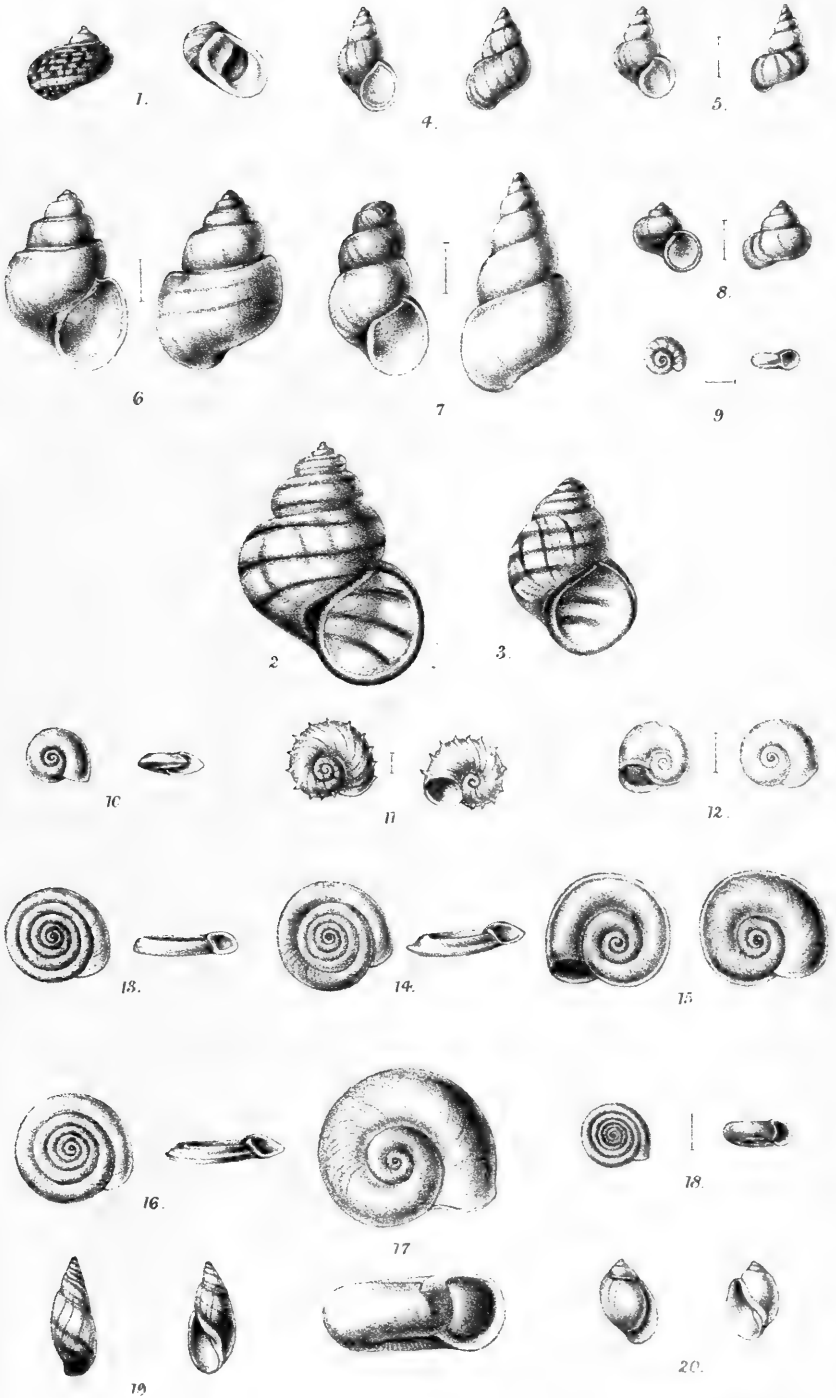
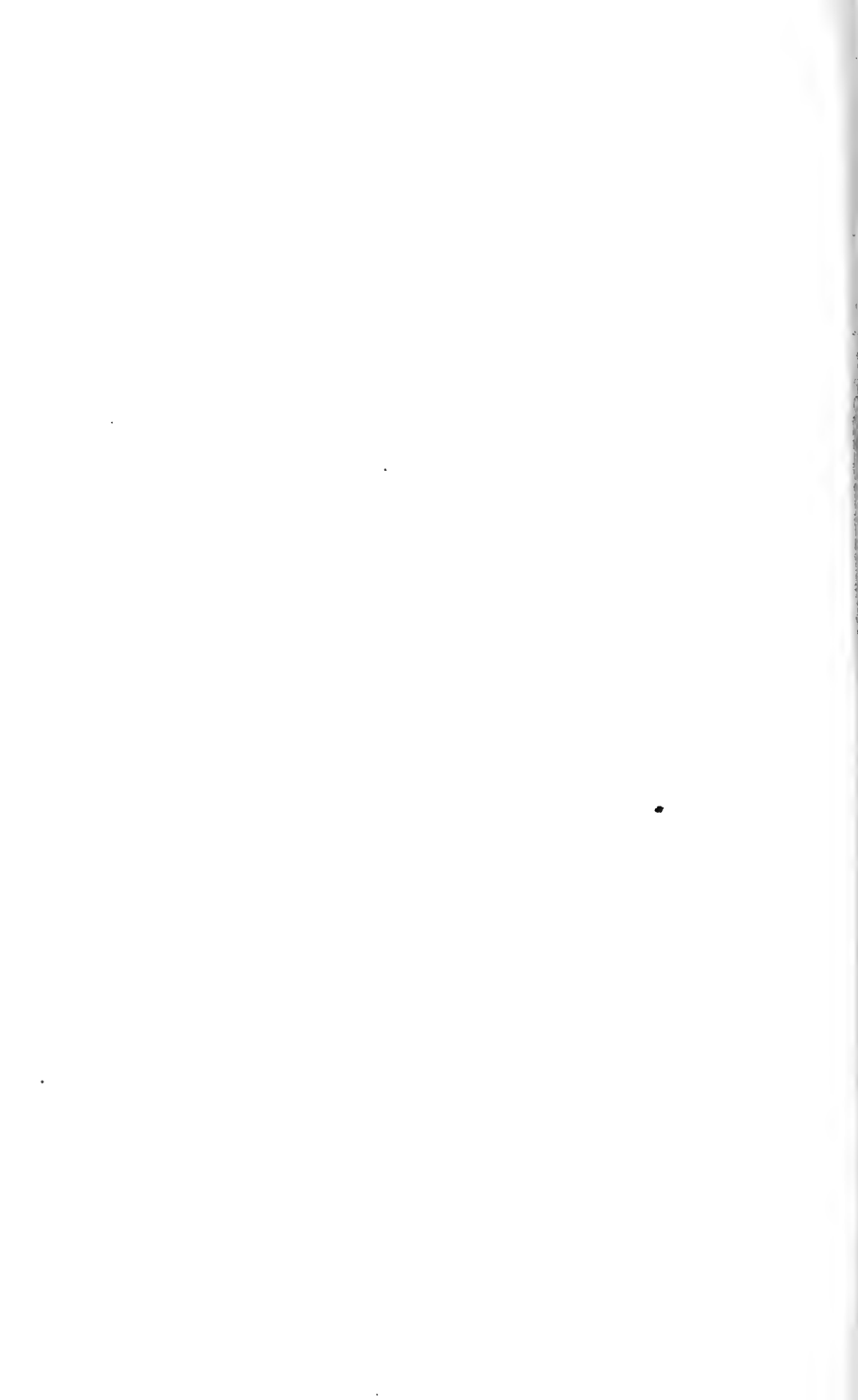


PLATE VI.

1. *Neritina fluviatilis*.
2. *Paludina contecta*.
3. ,, *vivipara*.
4. *Bythinia tentaculata*.
5. ,, *Leachii*.
6. *Hydrobia similis*.
7. ,, *ventrosa*.
8. *Valvata piscinalis*.
9. ,, *cristata*.
10. *Planorbis nitidus*.
11. ,, *Nautileus*.
12. ,, *albus*.
13. ,, *spirorbis*.
14. ,, *vortex*.
15. ,, *carinatus*.
16. ,, *comp'aratus*.
17. ,, *corneus*.
18. ,, *contortus*.
19. *Physa hypnorum*.
20. ,, *fontinalis*.





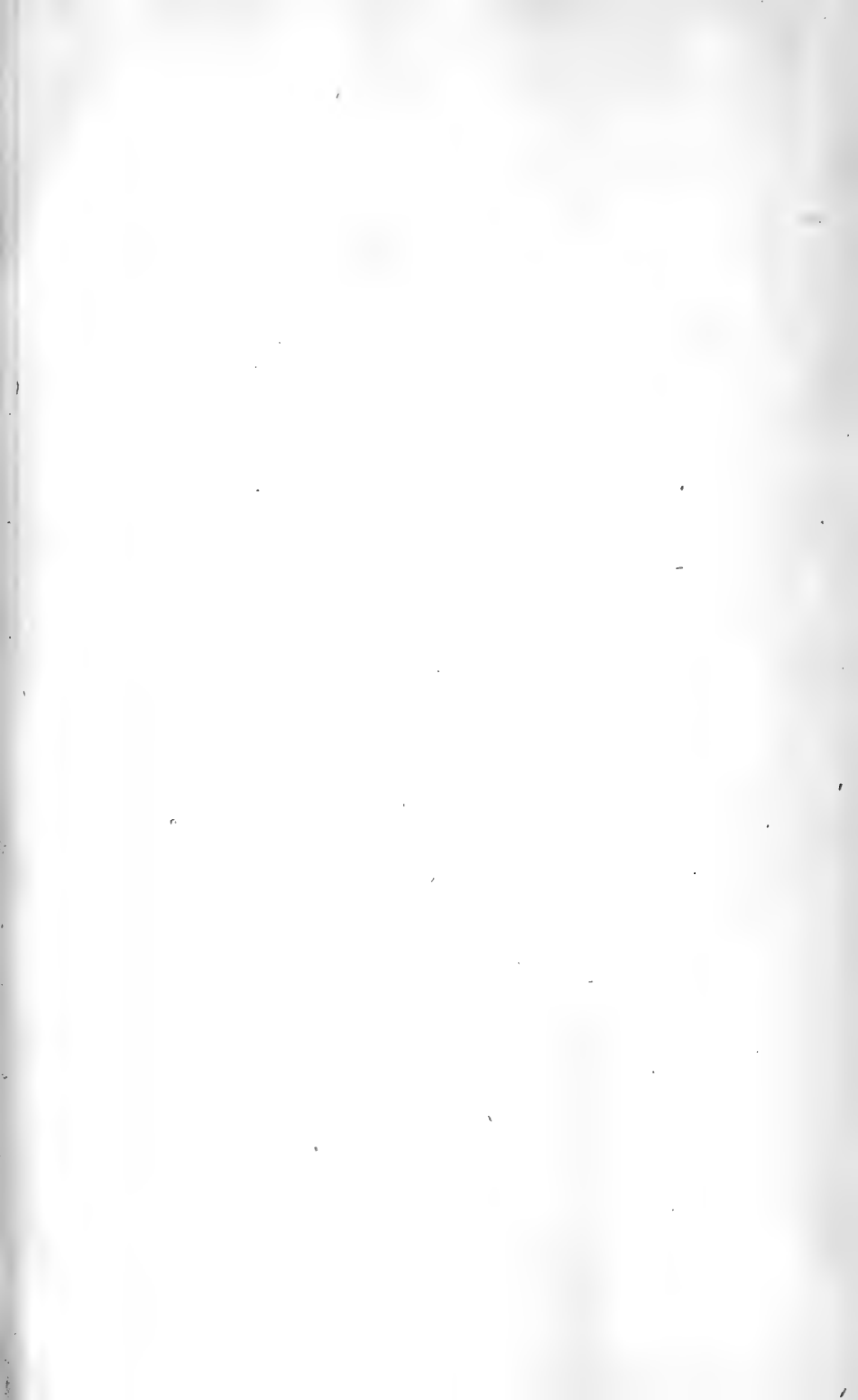
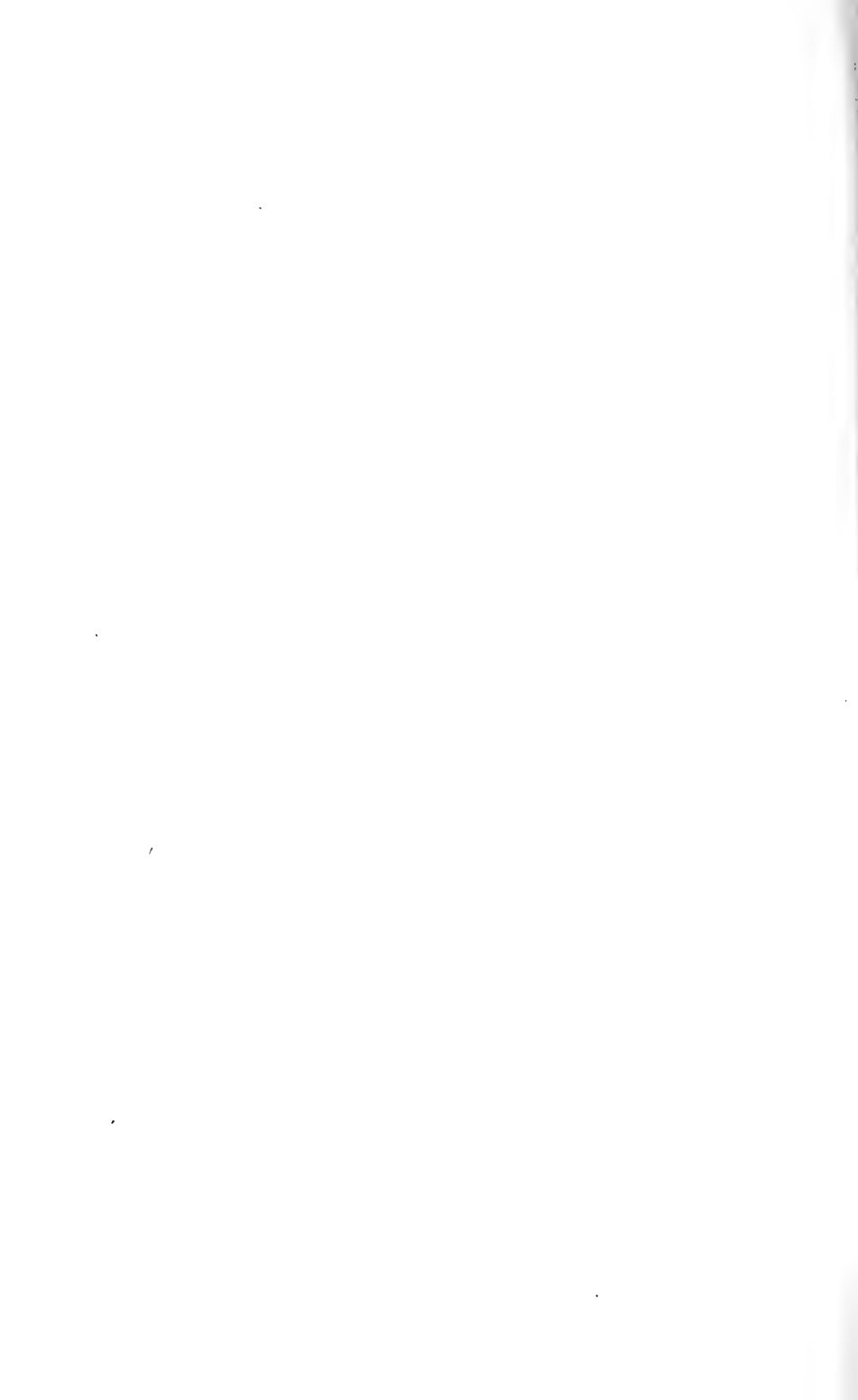


PLATE VII.

1. *Limnæa glutinosa*.
2. „ *peregra*.
- 2a. „ *var. acuta*.
3. „ *auricularia*.
4. „ *stagnalis*.
5. „ *palustris*.
6. „ *truncatula*.
7. „ *glabra*.
8. *Ancylus fluviatilis*.
9. „ *lacustris*.
10. *Succinea putris*.
11. „ *elegans*.
12. *Vitrina pellucida*.
13. *Zonites cellarius*.
14. „ *alliarus*.
15. „ *nitidulus*.
16. „ *purus*.
17. „ *radiatulus*.
18. „ *nitidus*.
19. „ *excavatus*.
20. „ *crystallinus*.
21. „ *fulvus*.

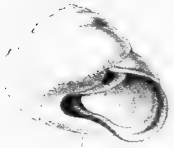




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PLATE VIII.

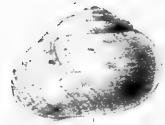
1. *Helix nemoralis*.
2. „ *var hortensis*.
3. „ *arbustorum*.
4. „ *aspersa*.
5. „ *ericetorum*.
6. „ *lapicida*.
7. „ *cantiana*.
8. „ *Pisana*.
9. „ *virgata*.
10. „ *rufescens*.



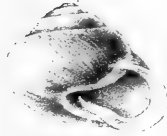
1.



2.



3.



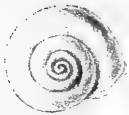
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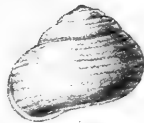
5.



6.



7.



8.



9.



10.

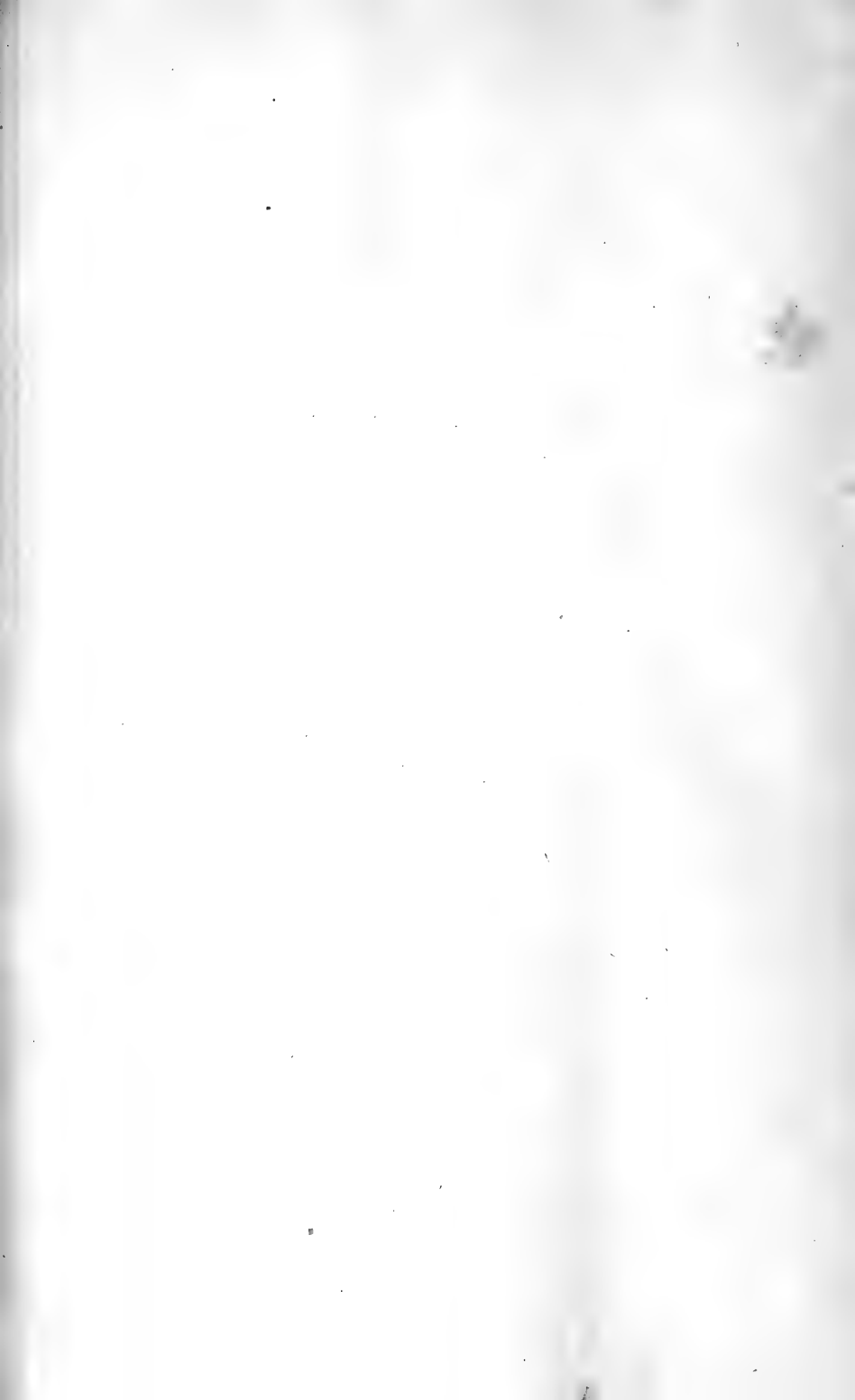
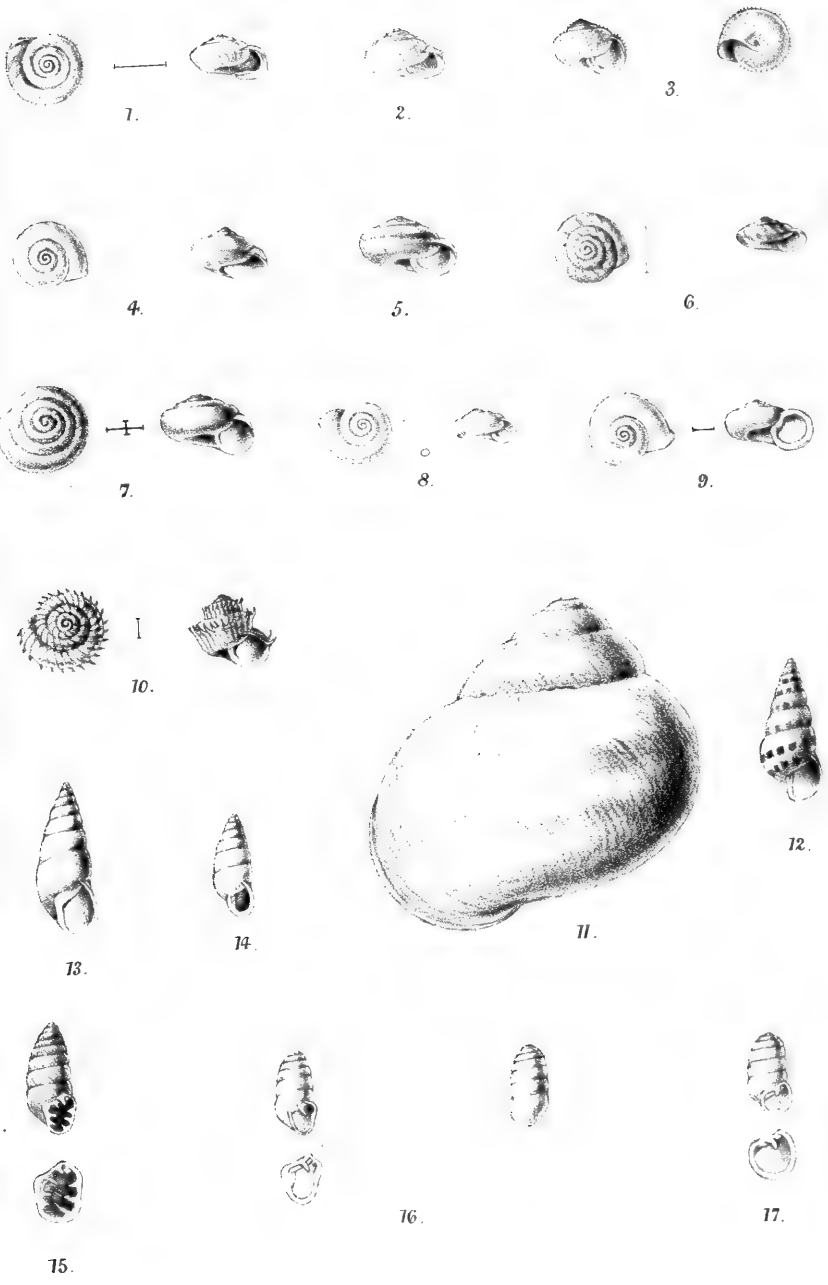


PLATE IX.

1. *Helix concinna*.
2. „ *hispid*a.
3. „ *sericea*.
4. „ *fusca*.
5. „ *caperata*.
6. „ *rotundata*.
7. „ *rupestris*.
8. „ *pygmæa*.
9. „ *pulchella*.
10. „ *aculeata*.
11. „ *pomatia*.
12. *Bulimus acutus*.
13. „ *montanus*.
14. „ *obscurus*.
15. *Pupa secale*.
16. „ *acuta*.
17. „ *marginata*.



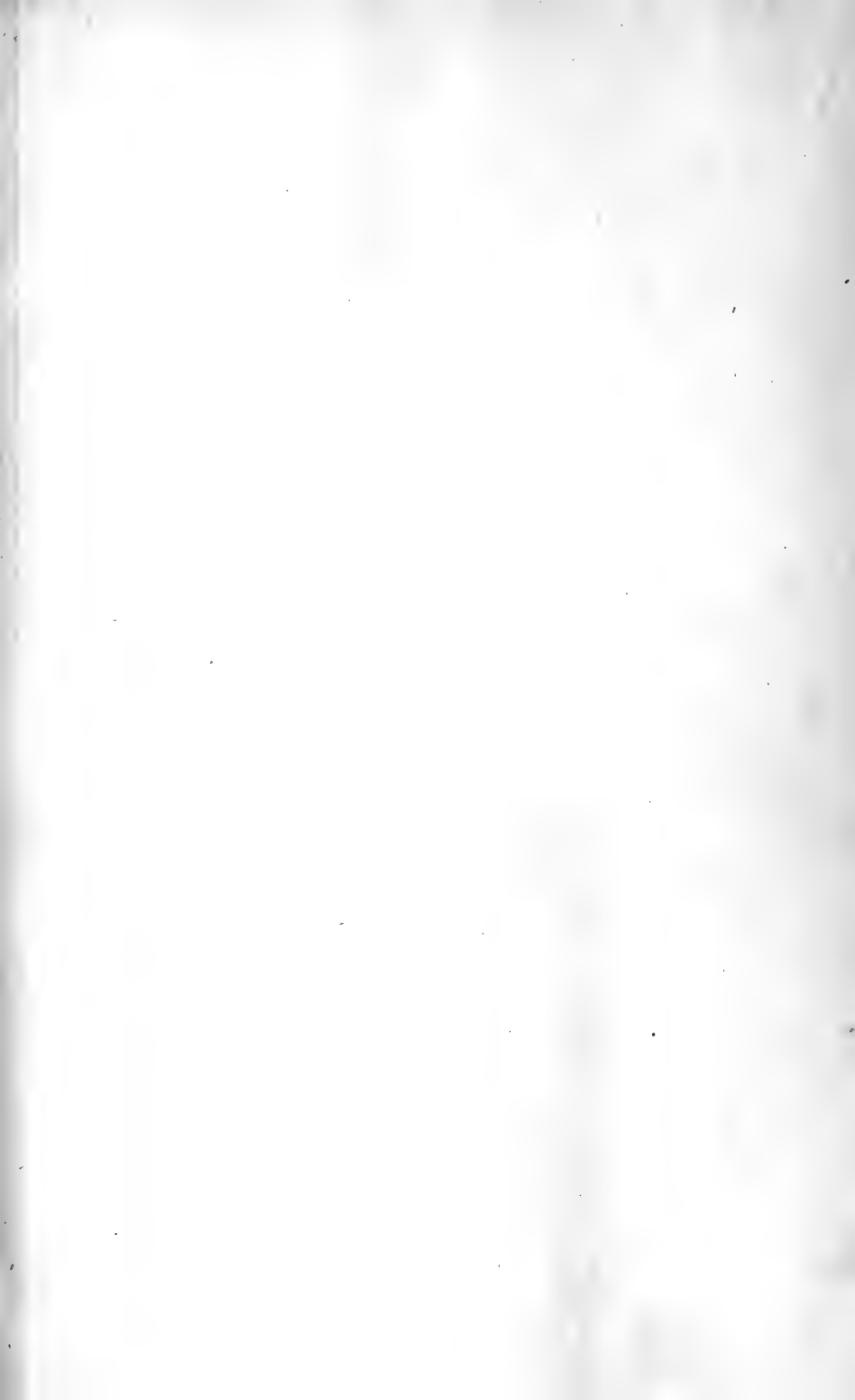


PLATE X.

1. *Vertigo antivertigo*.
2. ,, *edentula*.
3. ,, *pygmæa*.
4. ,, *minutissima*.
5. *Balia perversa*.
6. *Clausilia laminata*.
7. ,, *rugosa*.
8. *Cochlicopa tridens*.
9. ,, *lubrica*.
10. *Achatina acicula*.
11. *Carychium minimum*.
12. *Cyclostoma elegans*.
13. *Melampus myosotis*.



1



2



3



4



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6



7



8



9



10



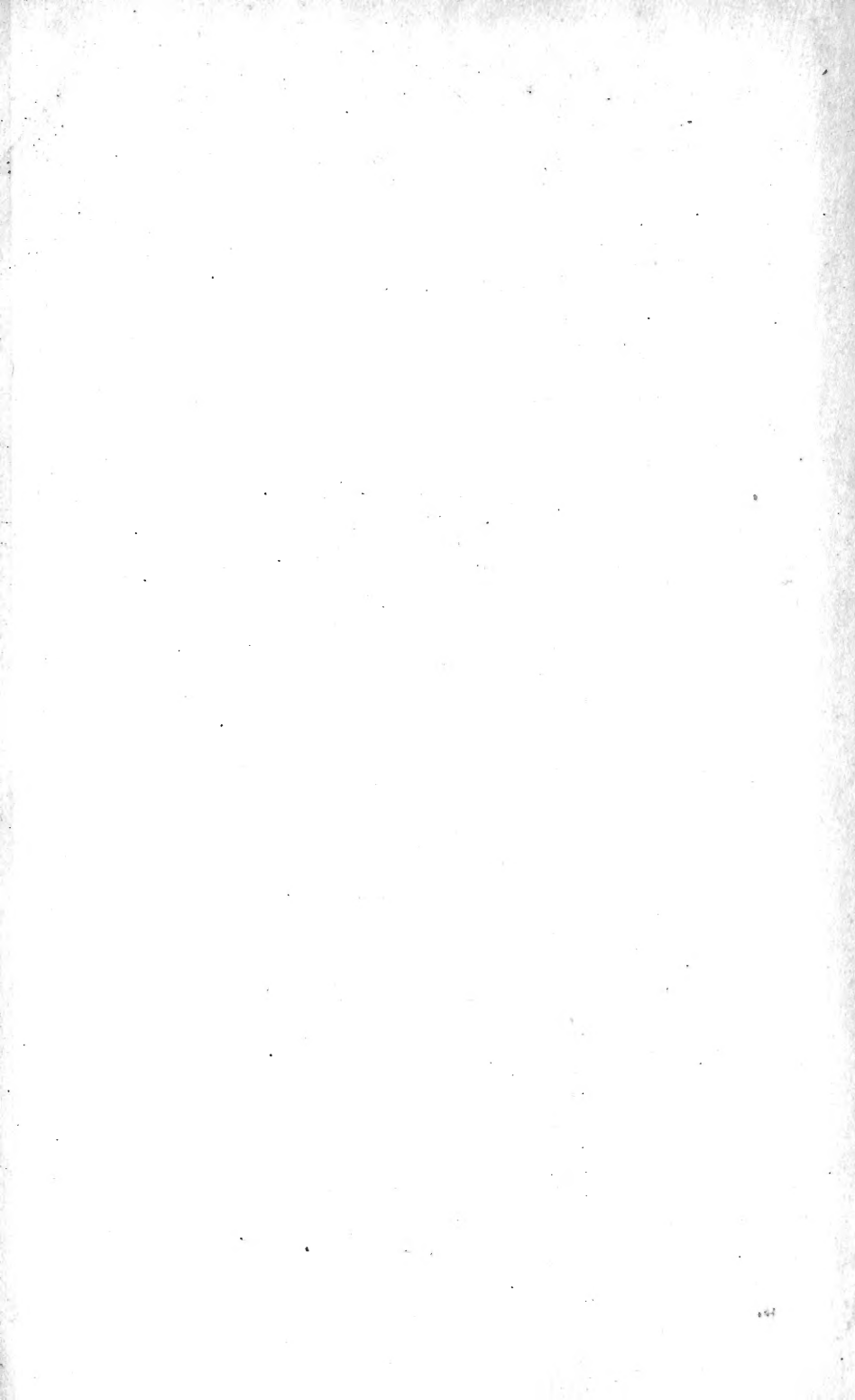
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