

with it in a state of nature, and that the bird of all others which would be most likely to come across it was the very one which showed no fear of it, but devoured it with avidity, the protective character of the caterpillar, consisting chiefly in its violent contrasts of colour (for the one experimented with never exerted its tentacles, even when violently pecked), ceases to be of any very great advantage to it.

On the 25th August I obtained larvæ of *Spilarctia lubricipeda*, which one of my Blackbirds ate directly they were thrown into his cage\*.

My experiments this year have convinced me that the tastes of birds not only differ in individuals of the same species, but that the same individuals in consecutive years vary as to their likes and dislikes; in the second place they have confirmed the opinion, based upon previous experiments, which I expressed in my last paper, viz. that no insectivorous bird has the least fear of the largest British spider (doubtless if one offered a *Mygale* to a Waxbill or Goldcrest the bird would be alarmed); thirdly that, as already shown, the imago of *Abraxas grossulariata* is far from being distasteful, although the larva is distinctly so to many, if not to all, insect-eaters; lastly, that caterpillars and birds do not share with human beings the notion that the line of beauty is terrifying when seen in a large moth-larva. If a caterpillar gets a dig in the back from the beak of a bird it doubles up just as a human being would from a blow on the opposite side of his body; it does not do it to terrify the bird, but simply because it is in pain.

XXXIX.—*Revision of British Mollusca.* By the Rev. Canon A. M. NORMAN, M.A., D.C.L., F.R.S., F.L.S., &c.

[Continued from p. 91.]

#### Order IV. PULMONATA.

It is only in a few cases that I have thought it necessary to make observations on the species of Land and Freshwater Mollusca, nor have I, with few exceptions, given the varieties. These will be found in 'British Conchology;' and very much has been written since on the subject in the 'Journal of Conchology,' to which journal it is only requisite to refer those who are interested in the subject.

\* This larva has since been eaten with satisfaction by a Chaffinch.



## Suborder I. GEOPHILA.

## A. MONOTREMATA.

## Fam. 1. Testacellidæ.

## Genus TESTACELLA, Cuvier.

176. *Testacella haliotidea*, Drap.Var. *scutulum*, Sowerby.177. *Testacella Maugei*, Férussac.

This species is completely naturalized and widely spread now in gardens throughout England, and has been also found in Jersey by Mr. Bull.

## Fam. 2. Limacidæ.

## Genus 1. LIMAX, Linné.

178. *Limax maximus*, Linné.179. *Limax marginatus*, Müller, = *L. arborum*, Bouch.-Chant.

This is generally considered, and I think with reason, to be the *L. marginatus* of Müller; but Jeffreys in Brit. Conch. vol. i. followed Draparnaud in applying that name to *L. carinatus*; but see vol. v. p. 155.

180. *Limax flavus*, Linn.181. *Limax agrestis*, Linn.182. *Limax lævis*, Müller, = *L. brunneus*, Bouch.-Chant.

Jeffreys, who had little studied other Mollusca than those which bear external shells, supposed that this was a variety of *L. agrestis*. It is very different in form from that species, very local, and inhabits, so far as I have observed, marshy meadows. Jeffreys at a later period described it (see Brit. Conch. vol. v. p. 156).

183. *Limax tenellus*, Müller.

The admission of this species into our lists I believe chiefly rests on Mr. Alder's authority. The specimen figured by Forbes and Hanley was found at Allansford, near Shotley Bridge, Co. Durham. All Mr. Alder's original drawings are in my possession, and among them is that of this slug.



There are three figures—one of the natural size, the second a lateral enlarged view, being that given in F. & H., the third taken from below; but a point of especial interest is that at one corner of the cardboard are still to be seen traces of a yellow stain, underneath which is written “stain of the mucus.” “The mucus (this character is especially to be noted) is orange-coloured” (F. & H.).

North Mavine, Shetland, on stones in a watercourse of a mountain rill (Jeffreys).

Subgenus AMALIA, Moq.-Tandon.

184. *Limax carinatus*, Risso, = *L. marginatus*, Drap. & Jeffreys (non Müller).

185. *Limax gagates*, Draparnaud.

This is generally considered a rare species; but I have found it more frequently than the last, and described it many years ago (‘Zoologist,’ 1853, p. 4048). I have had specimens from St. Martin’s, Guernsey; Torquay; Tenby; several places in the county of Durham, including my own garden here; Cumbrae, N.B.; Killarney, Ireland.

Genus 2. VITRINA, Draparnaud.

186. *Vitrina pellucida* (Müller).

Genus 3. CONULUS, Fitzinger.

187. *Conulus fulvus* (Müller).

A species apparently of more extensive distribution than any other land-shell—the whole of Europe, North Africa, the Azores, Western Asia, Siberia, Central Asia, whence it is recorded by von Martens. I cannot find the slightest difference when shells of the American *Helix chersina*, Say, are placed beside European *fulvus*, and that shell ranges from Alaska to Florida, Hudson’s Bay Territory to California and Texas. Most authors make *H. chersina* a synonym of *C. fulvus*; but Dall (Proc. U. S. Nat. Mus. 1885, p. 271) writes:—“This species will probably be found identical with *Z. fulvus*; but as the name of *fulvus* is not uncontested and there seems to be some discrepancy in observations of the soft parts, I prefer to retain Say’s name.”

Genus 4. HYALINIA, Férussac.

188. *Hyalinia crystallina* (Müller).



189. *Hyalinia nitida* (Müller).

190. *Hyalinia excavata* (Bean).

191. *Hyalinia pura* (Alder).

192. *Hyalinia radiatula* (Alder), ? = *Helix hammonis*, Ström.

*H. radiatula*, like *Conulus fulvus*, has an enormous range, extending over Europe, Caucasia, Siberia, Amoorland, and North America, down to Florida and up to such remote places as Behring Island, and even Point Barrow, Alaska, whence Dall records it "from moss off the tundra." It is the *Hyalina pellucida*, Lehnert, and *Helix electrica*, Gould.

193. *Hyalinia glabra* (Studer).

Thirty years ago my dear old friend Alder gave me a series of seven specimens of this shell rightly named, which had been found by Mr. Gilbertson, of Preston, about 1837\*. I also have from his collection three European specimens of the same shell, which I have little doubt were sent to him for comparison by Férussac, with whom he was in frequent correspondence. Dr. Jeffreys in 1870 (Ann. & Mag. Nat. Hist. May) recorded the species as British, it having been found by Mr. Thomas Rogers at Marple Wood, Cheshire, and by himself at Grassmere and Barmouth. Three of Mr. Rogers's specimens (given me by Jeffreys) range in my cabinet next to those of Gilbertson. Subsequently I collected this shell in company with Jeffreys in his own grounds at Ware Priory; and it has since been found in many other localities.

194. *Hyalinia alliararia* (Miller).

195. *Hyalinia cellaria* (Müller).

196. *Hyalinia Draparnaudi* (Beck).

In the 'Journal of Conchology,' vol. iii. p. 177, this shell is stated to have been found by Mrs. Fitzgerald at Guernsey, Torquay, and Bristol.

197. *Hyalinia nitidula* (Drap.).

Var. 1. *nitens*, Mich.

Var. 2. *Helmi*, Gilbertson.

Westerlund and other continental authors, who have

\* Alder, Mag. Zool. and Bot. 1838, ii, p. 108, and Gray's Turton's Manual, p. 169.



greatly multiplied so-called species in this genus, regard *H. nitens* as distinct from *H. nitidula*, and *Helmii* as a variety of it.

Fam. 3. Helicidæ.

Genus 1. ARION, Férussac.

198. *Arion ater* (Linn.).

Var. *flavus* (Müller).

199. *Arion hortensis* (Férussac).

Genus 2. GEOMALACUS, Allman.

200. *Geomalacus maculosus*, Allman.

Genus 3. HELIX, Linné.

Subgenus 1. PUNCTUM, Morse.

201. *Helix pygmæa*, Drap.

Subgenus 2. PATULA, Held.

202. *Helix rotundata*, Müller.

203. *Helix rupestris*, Studer.

Subgenus 3. VALLONIA, Risso.

204. *Helix pulchella*, Müller.

Var. *costata*, Müller.

Subgenus 4. ACANTHINULA, Beck.

205. *Helix aculeata*, Müller.

206. *Helix lamellata*, Jeffreys.

Subgenus 5. GONOSTOMA, Held.

207. *Helix obvoluta*, Müller.

Subgenus 6. CHILOTREMA, Leach.

208. *Helix lapicida*, Linn.

Subgenus 7. FRUTICOLA, Held.

209. *Helix hispida*, Linn.

Var. 1. *concinna*, Jeffreys.

Var. 2. *depilata*, Pfr.



210. *Helix rufescens*, Pennant.  
 211. *Helix granulata*, Alder, = *H. sericea*, Drap. (non Müller).  
 212. *Helix revelata*, Férussac.  
 213. *Helix fusca*, Montagu.  
 214. *Helix cantiana*, Montagu.  
 215. *Helix carthusiana*, Müller.

Subgenus 8. ARIANTA, Leach.

216. *Helix arbustorum*, Linn.

Varieties of this species described, J. W. Taylor, 'Journal of Conchology,' vol. iii. p. 241.

Subgenus 9. EUPARYPHA, Hartmann.

217. *Helix pisana*, Müll.

Subgenus 10. XEROPHILA, Held.

218. *Helix virgata*, Da Costa.  
 219. *Helix ericetorum*, Müll.  
 220. *Helix caperata*, Montagu, =? *H. intersecta*, Poiret.  
 221. *Helix acuta*, Müller, = *Bulimus acutus*, Jeffreys.

Subgenus 11. TACHEA, Leach.

222. *Helix nemoralis*, Müller.

Var. *albolabiata*.

The shell agreeing in size, texture, &c. with the type, but the lip white.

Scarborough (*Bean & Leckenby*).

Var. *roseolabiata*.

Shell agreeing in size, texture, &c. with the type, but the lip rosy pink.

I have two specimens of this variety, one from Wells, Somerset, and the other from Falmouth. They agree in coloration and are yellow, girt with five deep salmon-coloured bands.

223. *Helix hortensis*, Müller.

Var. *fuscolabiata*, Kregl., = *hybrida*, Poir.



Subgenus 12. POMATIA, Leach.

224. *Helix aspersa*, Müll.  
225. *Helix pomatia*, Linn.

Fam. 4. Pupidæ.

Genus 1. BULIMINUS, Ehrenberg.

226. *Buliminus montanus* (Drap.).  
Var. *albinus*.

Cooper's Hill, near Cheltenham (*J. W. Taylor*).

227. *Buliminus obscurus* (Müll.).

Genus 2. PUPA, Draparnaud.

Subgenus 1. LAURIA, Gray.

228. *Pupa cylindracea* (Da Costa) = *Pupa umbilicata*, Drap.  
Var. *Sempronii*, Charp.

"Shell smaller, aperture without denticle, lip not so wide; Penyghent, Yorkshire." (*J. W. Taylor*.)

229. *Pupa anglica* (Férussac) = *Pupa ringens*, Jeffreys.  
Sutherlandshire (*Baillie of Brora*).

Subgenus 2. TORQUILLA, Faure-Big.

230. *Pupa secale*, Drap.  
Var. *Boileausiana*, Charp.

Dorridge Bridge, near Ingleton, Yorkshire (*Nelson*).

Var. *edentula*, Taylor.

Rocks near Ingleton, Yorkshire (*J. W. Taylor*);  
Eastbourne, Sussex (*Loydell*).

Subgenus 3. PUPILLA, Leach.

231. *Pupa muscorum*, Müll., = *Pupa marginata*, Drap.  
Var. *edentula*, M.-Tand.

Brough, N.E. Yorkshire (*J. W. Taylor*); Margate (*Cockerell*); Clevedon, Somerset (*A. M. N.*).



Var. *albina*, Menke.

Cleeve Priors, Worcestershire (*W. H. Boland*);  
Weston-on-the-Green, Oxfordshire (not Weston-  
super-Mare, as erroneously given by *Jeffreys*)  
(*A. M. N.*).

Subgenus 4. SPHYRADIUM, Agassiz.

232. *Pupa edentula*, Drap.

Var. *columella*, von Martens.

Subgenus 5. ISTHMIA, Gray.

233. *Pupa minutissima*, Hartmann.

Subgenus 6. ALÆA, Jeffreys.

234. *Pupa alpestris*, Alder.

235. *Pupa Lilljeborgi*, West.

*Vertigo Moulinsiana*, Jeffreys, Brit. Conch. vol. i. (1862) p. 255, vol. v.  
pl. xv. fig. 6; Reeve, Brit. Moll. 1863, p. 117, descr. et syn. nec fig.  
quæ ex Moq.-Tand. cop.; nec *P. Moulinsiana*, Dup. (*fide* Westerlund).

*Vertigo modesta*, Westerlund, Öfvers. af K. Vet.-Akad. Förh. 1865,  
p. 556 (nec *V. modesta*, Say).

*Pupa Lilljeborgi*, Westerlund, Exposé critique des Moll. de Terre et  
d'Eau douce de la Suède et Norvège, 1871, p. 90; Fauna der in der  
paläarc. Reg. lebenden Moll. iii. 1887, p. 136.

*Vertigo Lilljeborgii*, Jeffreys, Ann. & Mag. Nat. Hist. ser. 5, vol. ii.  
(1878), p. 380.

Under stones by the side of a small lake at Ballinahinch,  
near Roundstone, Co. Galway, where Jeffreys made this acqui-  
sition to the British Mollusca in 1845.

I searched for the shell in this locality in 1874, but did not  
succeed in rediscovering it.

236. *Pupa Moulinsiana*, Dupuy.

*Pupa Moulinsiana*, Dupuy, Hist. Nat. des Moll. 1850, p. 415, pl. xx.  
fig. 11.

*Pupa Charpentieri*, Shuttleworth, Chemn. Conch.-Cab. 1852, p. 129,  
pl. xvi. figs. 41, 43.

*Pupa Moulinsiana*, Jeffreys, Ann. & Mag. Nat. Hist. ser. 4, vol. xix.  
1877, p. 432 (partim), and ser. 5, vol. ii. 1878, p. 380 (nec Brit.  
Conch. vol. i. p. 255, nec vol. v. pl. xv. fig. 6).

*Pupa Moulinsiana*, Reeve, Brit. Land and Freshw. Moll. (1863), p. 117,  
woodcut.

*Pupa Moulinsiana*, Westerlund, Fauna der in der paläarct. Region,  
lebenden Mollusca, iii. 1887, p. 136.

Otterbourne, Hants; Hitchin, Herts; and Essex border of  
Herts near Rye House (*H. Groves*).



Dupuy's figure of this shell is good. Jeffreys says that it is found on grasses in wet places high up the stalk.

237. *Pupa pygmæa*, Drap.

Var. *quadridentata*, Studer.

Norwich (*W. K. Bridgman*, in *Mus. Norm.*),  
Dirtcar, near Wakefield (*J. W. Taylor*).

238. *Pupa substriata*, Jeffreys.

239. *Pupa antivertigo*, Drap.

Subgenus 7. VERTIGO, Müller.

240. *Pupa pusilla*, Müll.

[*Pupa tumida*, Westerlund.

*Pupa tumida*, Westerlund, *Exposé critique des Moll. de Terr. et d'Eau douce de la Suède et Norvège*, 1871, p. 99; *Fauna der in der paläarkt. Reg. lebenden Moll.* iii. 1887, p. 141.

"I am indebted to Dr. Westerlund for *Pupa tumida*, of which I find a specimen in my collection named *V. pusilla*, var. I am not sure that it is more than a dwarf variety or form of *V. pusilla*. The two specimens sent by Dr. Westerlund differ from each other in the number of teeth, one specimen having five and the other seven teeth. He describes *V. tumida* as '6-dentata' and *V. pusilla* as '6-8-dentata.'" (*Jeffreys*, *Ann. & Mag. Nat. Hist.* ser. 5, vol. ii. 1878, p. 381.)]

241. *Vertigo angustior*, Jeffreys.

Bundoran, Co. Donegal; Ballina, Co. Mayo; and Killauley Glebe, Co. Sligo (*Miss Amy Warren*).

Genus 3. BALEA, Prideaux.

242. *Balea perversa* (Linn.).

Genus 4. CLAUSILIA, Draparnaud.

Subgenus 1. CLAUSILIASTRA, Mollend.

243. *Clausilia laminata* (Mont.).

Subgenus 2. ALINDA, Adams.

244. *Clausilia biplicata* (Mont.).



## Subgenus 3. KUZMICHIA, Brusina.

245. *Clausilia bidentata*, Ström, = *C. rugosa*, Jeffr., = *T. nigricans*, Pult.

Westerlund makes *Clausilia rugosa*, Drap., a different species from *Turbo nigricans*, Pulteney; but the *Turbo bidentatus* of Ström is an earlier name than either, dating from 1765.

246. *Clausilia parvula*, Studer.

*Clausilia parvula*, A. Schmidt, Kritische Gruppen der Europäischen Clausilien, 1857, p. 33, figs. 69-74, 189, 190; Jeffreys, Brit. Conch. v. p. 161, pl. xcix. fig. 2.

Kinver, near Stourbridge; several specimens (*Grant Allen*).

The above reference will give good figures of the shell, the European distribution of which is thus represented in my collection:—Namur, Metz, Drachenfels, Geneva, Savoy, and var. *minor* from Carinthia.

It must be remembered that this is not the first time that so-called *Cl. parvula* has been recorded as British. Gray ('Manual,' p. 218) writes:—"Mr. Alder has kindly communicated to me 'a specimen of the shell he sent to Turton, which Dr. Turton calls *C. parvula* (t. v. p. 59), and also the specimens of the true *C. parvula* (according to Férussac), found in Germany, for comparison.' He further observes that all the British specimens he has seen he thinks are only varieties of *C. nigricans*, which I think the specimen fully bears out."

247. *Clausilia Rolphi* (Gray).

[Jeffreys, vol. v. p. 162, pl. xcix. fig. 2, records *Clausilia* (*Papillifera*) *solida*, Drap., as British on the strength of a single specimen found by Mr. Rich (a dealer in shells) with *C. laminata* at Stapleton, near Bristol. The wretched figure given appears to me to represent the allied *C. bidens*, Linn. (= *C. papillaris*, Müll.) rather than *C. solida*, Drap. *C. bidens* was long ago recorded by Pulteney as having occurred in Dorset, and I have a specimen which was one of several said to be British preserved in the Plymouth Museum, and given me thence in 1853.]

## Fam. 5. Stenogyridæ.

## Genus 1. CIONELLA, Jeffreys.

*Cochlicopa* of Férussac included species of *Glandina*, and is a synonym of that genus rather than of the present one.



248. *Cionella lubrica* (Müll.).

Subgenus AZECA, Leach.

249. *Cionella tridens* (Pulteney).

For notes on this species see Taylor, 'Journal of Conchology,' vol. ii. p. 220. A reversed monstrosity has been found by Mr. J. Emmet, of Boston Spa.

Genus 2. CÆCILIANELLA, Férussac.

250. *Cæcilianella acicula* (Müller).

Fam. 6. Succineidæ.

Genus SUCCINEA, Draparnaud.

251. *Succinea putris* (Linn.).

252. *Succinea elegans*, Risso.

Westerlund separates *S. elegans* and *S. Pfeifferi*, Rossm., and gives seven named varieties of the former and seventeen of the latter. I cannot myself, after an examination of twelve of these named varieties, find any points which seem to me to constitute specific characters between these most variable shells, and therefore I follow Jeffreys in using the earlier name.

253. *Succinea stagnalis*, Gassies.

*Succinea putris*, var. *vitrea*, Jeffreys, Brit. Conch. vol. i. (1872), p. 152.

*Succinea virescens*, Jeffreys, Ann. & Mag. Nat. Hist. ser. 5, vol. ii. (1878), p. 378 (nec *S. virescens*, Morelet, *fide* Baudon).

*Succinea stagnalis*, Gassies, Malac. Terr. et d'Eau douce de la rég. int. litt. de l'Aquitaine, p. 14, fig. 2.

*Succinea stagnalis*, Baudon, Deuxième Supplément à la Mon. des Succinées Françaises (1879), p. 1, pl. xi. figs. 1-3.

Jeffreys gives the following localities:—Carmarthenshire, Grassmere, and St. Albans (*J. G. J.*), Cork (*Humphreys*), Mitcham, in Surrey (*Henry Groves*).

The *Succineæ* are most difficult to distinguish and the forms run into each other, so that I am myself disposed to hold that we have but two species, *S. putris* and *S. oblonga*. *Succinea stagnalis* affords a good illustration of confusion. Jeffreys first referred it to *S. putris* as var. *vitrea* (I suppose taking that name from Moquin-Tandon); then receiving from Baudon the shell described by him as *S. debilis*, said that his shell was the same, but that it was not *S. debilis* (Morelet, MS.) C. Pfeiffer, the



types of which he had examined in the Cumingian collection, but that it was *S. virescens*, Morelet. Baudon (*l. c.*) replies that Jeffreys's shells are not Moquin-Tandon's *vitrea*, which is a var. of *putris*, that they are not *S. virescens*, Morelet, with a type of which he has compared them. He refers them to *S. stagnalis*, Gassies, and figures two of Jeffreys's shells—that from Grassmere, which he considers typical, and that from St. Albans, which he calls var. *Jeffreysi*. Judged by the drawings of these two shells, it seems to be a case of distinction without a difference. However, we have at least a certain name, and the British shells are *S. stagnalis* (Gassies), Baudon.

In the 'Annals' Jeffreys referred his shell to *S. debilis*, Baudon, from whom he had received specimens: it may be supposed that these specimens were Baudon's var. *viridula*, which would be colourless, like Jeffreys's own *vitrea*; and it appears to me that to distinguish Baudon's figure of that variety in his original monograph (pl. ix. fig. 5) from his subsequent figures of *S. stagnalis* is hair-splitting indeed. But Jeffreys also stated that, having examined Pfeiffer's (*i. e.* Morelet's) type, he found that to be a different thing. How so, I would ask, in anything but colour?

It happens that in the collection of the late Dr. Tiberi, of Naples, now a part of my own, I find two *Succinea* labelled "*Succi. debilis*, Morl. Alger.," and two others labelled "*Succinea pleuraulaca*, Letour. Alger." This collection is remarkably rich in types, and I have no doubt, although it is not so stated, that these shells were received from the authors whose names are attached to the species. These shells are identical, pale horn-coloured, but differing slightly in depth of tint, remarkable for their short spire, and are exactly represented by the figure in Baudon's original monograph as *Succinea debilis*, var. *stagnalis*, pl. ix. fig. 7. Now Morelet, in his second Supplement, has removed from his original *S. debilis* the varieties *stagnalis* and *tuberculata*, and elevated them to a species under the first of these names. Turning to Westerlund we find *S. pleuraulaca*, Letour., given as a variety of *S. putris*, and *S. debilis*, Pfeiffer, holding specific rank.

With reference to Jeffreys's ('Annals') criticism on a mistaken reference of Baudon to *S. humilis* as having been described by Morelet, see Baudon ('Troisième Supplément à la Mon. des Succinées Françaises' (1881), p. 12), where he writes:—"Le nom de *debilis* l'été donné par M. Morelet, et Pfeiffer décrivit l'espèce. M. Morelet me dit, à ce sujet: 'Je n'ai jamais décrit cette coquille. Il y a vingt ans environ que je donnai à Cuming, sous le nom de *debilis*, une Ambrette



que j'ai recueillie en Algérie. C'est dans la collection de cet amateur que Pfeiffer la vit et la décrivit.' "

254. *Succinea oblonga*, Draparnaud.

## B. DITREMATA.

### Fam. 7. *Oncidiidæ*.

#### Genus *ONCIDIELLA*, Gray.

255. *Oncidiella celtica* (Cuvier).

The young of this species in its larval state is furnished with a shell which is afterwards cast off.

The systematic position of the *Oncidiidæ* has been much disputed. Bergh \*, after reviewing the varied opinions of authors, sums up his views thus :—"The *Onchidia* agree with the *Pulmonata* in the structure of the nervous system, in the existence of a lung and of a parenchymatous kidney, in the presence of the peculiar pedal gland, and in various peculiarities of the generative system. From a tolerably extensive knowledge of the so-called Nudibranchs I cannot but regard the *Onchidia* as pretty widely separated from them. On the contrary, they branch off from the *Pulmonata*; they are *Pulmonata* which have adapted themselves to an amphibiotic or marine mode of life."

## Suborder II. GEHYDROPHILA.

### Fam. 8. *Auriculidæ*.

#### Genus 1. *CARYCHIUM*, O. F. Müller.

256. *Carychium minimum*, Müll.

#### Genus 2. *ALEXIA*, Leach.

257. *Alexia myosotis* (Drap.).

258. *Alexia denticulata* (Mont.) = *Melampus myosotis*, var. *ringens*, Jeffr.

#### Genus 3. *LEUCONIA*, Gray.

259. *Leuconia bidentata* (Mont.).

Var. *alba*, Turton.

\* Bergh, 'Morphologisches Jahrbuch,' Bd. x. p. 172; translated, Ann. & Mag. Nat. Hist. ser. 5, xiv. 1884, p. 259.



## Fam. 9. Otinidæ.

## Genus OTINA, Gray.

260. *Otina otis*, Turton.Var. *candida*, Jeffreys.The variety from Sark (*Dr. Lukis, Mus. Norm.*).

## Suborder III. HYGROPHILA.

## Fam. 10. Limnæidæ.

## Genus 1. ANCYLUS, Geoffroy.

261. *Ancylus fluviatilis*, Müll.Var. *capuloides* (Jan), Porro.Var. *gibbosus*, Bourg.262. *Ancylus lacustris* (Linn.).

## Genus 2. LIMNÆA, Lamarck.

263. *Limnæa stagnalis* (Linn.).264. *Limnæa palustris* (Müll.).265. *Limnæa truncatula* (Müll.).266. *Limnæa glabra* (Müll.).267. *Limnæa auricularia* (Linn.).268. *Limnæa peregra* (Müll.).

## Genus 3. AMPHIPEPLEA, Nilsson.

269. *Amphipeplea glutinosa* (Müll.).

This has been added to the Irish fauna by Mr. C. Ashford, who has found it in the Newry Canal, near Knochbridge, Co. Down, and the River Brusna, King's County (*Journ. Conch.* ii. p. 6).

270. *Amphipeplea involuta*, Thompson.

## Genus 4. PLANORBIS, Guettard.

271. *Planorbis corneus* (Linn.).272. *Planorbis contortus* (Linn.).273. *Planorbis carinatus*, Müll.



274. *Planorbis umbilicatus*, Müll., = *P. complanatus*, Jeffr. (non Linn.).

*P. complanatus*, L., is generally now regarded as *P. nitidus*, and not the present species, which, however, has been called *complanata* by Stein, Dupuy, Moquin-Tandon, Locard, Bourguignat, &c.

275. *Planorbis vortex* (Linn.).

276. *Planorbis spirorbis* (Linn.).

[*Planorbis dilatatus*, Gould.

*Planorbis dilatatus*, Gould, Invert. Mass. (1841), p. 210, fig. 140; *ibid.* edit. Binney (1870), p. 493, fig. 748; Rogers, Journ. Conch. vol. i. (1874), p. 81.

An accidentally introduced species, which appears to have established itself in the neighbourhood of Manchester in the Bolton Canal at Pendleton and Galton (*Thos. Rogers*).]

277. *Planorbis glaber*, Jeffreys.

278. *Planorbis albus*, Müller.

279. *Planorbis nautilus* (Linn.).

280. *Planorbis complanatus* (Linn.) = *P. nitidus*, Gray = *H. fontanus*, Lightfoot.

#### Genus 5. SEGMENTINA, Fleming.

281. *Segmentina nitida* (Müll.) = *Planorbis lineatus* (Walker), Jeffr.

Judged out of his own work, by comparing what is said of Müller's *Planorbis nitidus* in vol. i. p. 80, and vol. v. p. 172, Jeffreys shows that that species is the present and not the last to which he referred it.

#### Fam. 11. Physidæ.

##### Genus 1. PHYSA, Lamarck.

282. *Physa fontinalis* (Linn.).

Subgenus APLEXA, Fleming.

283. *Physa hypnorum* (Linn.).

[To be continued.]





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