

December 1964

London, S.W.1.

Produced by 'The Conchological Society of Great Britain and Ireland'

FOR YOUR ATTENTION - PLEASE

Members are reminded that subscriptions for 1965 are due next January 1st. (except for those who joined - and paid - since last October).

Subscription rates of the Society have not been increased since 1949, in spite of rising costs in all directions, and it has not been an easy matter to retain subscriptions at their present level so long. The time is now approaching when the Council may have to consider the possibility of an increase, but the members themselves can do much to delay this by prompt payment of their dues, since one rather heavy expense concerns the issue of printed reminders by the Hon. Treasurer. These waste a good deal of time and money and should be unnecessary; during the past year, the Hon. Treasurer had to send 63 first, 47 second and 30 third reminder forms, before subscriptions were paid.

It is believed that this Society gives good value for the subscription and all members are urged in the general interest to pay their dues without unreasonable delay.

Hon. Secretary

DAVID LANDSBOROUGH

It all began with asking in a second-hand bookshop if they had any books on seaweeds? They offered "Popular British Seaweeds", 1st. ed. 1847, by the Rev. David Landsborough (1779-1854) with the plates torn out. Even without these, the book proved so engrossing, that I read it all the way home on the 'bus. The very real enthusiasm and something indefinable about the writer's personality, made one long to know more about him. Now three years, and many reference books and letters later - I know a lot more about David Landsborough, and am gathering material for a biography. "Excursions to Arran", 1st. ed. 1847, his best known work, describes dredging off that island, and in the Kyles of Bute with his friends Major Martin, Mr. Smith, his son, Joshua Alder and his sister, and various members of the Landsborough family. In June and July of 1846, they got *Pecten Landsburgii*, Smith (*P. striata*, Müller) the Mottled Scallop, which made him famous in his day. His little work was an early example of a popular book, in the best sense of the word, and would surely spur on any shell hunter to greater efforts if they got a copy. There were few enough conchological works of any kind at that date - it would be five years before Forbes and Hanley published their great work, and two more before Sowerby's "Popular British Conchology". Landsborough lived in a time of transition, between the awakening of interest in Natural History among the public, as opposed to a few lone people, and the beginning of the more scientific times, when it became commoner to specialise. The Ayrshire minister had many pursuits; he also studied algae, mosses, zoophytes, and fossils; he liked butterflies, spiders and moorland plants. His conchological cabinets seem to be lost without trace, and I am trying to collect the shells he had, and hope to get together a party to dredge off Arran next summer. A time machine might be helpful, though, to go back to the year 1854, and take acceptance of the offer of a Mr. Damon in Dorset - "100 British species, fine specimens, and several of each, for £2.12. 6" or 300 ditto for £12.12. 0" which " could be safely transmitted by post" and to go with them "Neat Labels for British shells, complete, 3s. 6d., Postage included."

A. Rutherford

STILL MORE AUTOBIOGRAPHYChapter I

63- In the late 1890's, under the stimulus of an excellent science master at

the Brewers' Company's School at Islington, one of the boys became curator of the school museum. It was a well run affair with everything properly labelled with locality, genus, species, author, etc., and with the trivial names of the specimens respectfully placed after the Latin names. On Saturday afternoons the museum committee took material to the Natural History Museum at South Kensington for identification and of all the zoological miscellanea that filled their satchels the shells were the school curator's favourites. I was he.

## Chapter II

Many years and one world war later.

As light relief from a war job I went occasionally to Stevens' Auction Rooms in Hatton Garden, now, alas, long since closed. The sales there were entertainment without the necessity of paying entertainment tax: the queerest things were offered, one of which happened to be a box of Amphidromus shells, a glory of colour and form. I bought it and at that moment the furor conchyliorum was re-kindled in me.

## Chapter III

Many more years and another world war later.

I now have in 24 cabinets, large and small, nearly 13,000 species (yes, they are all named) and a shell library of some 600 books and more than 3,000 separates.



Certain deficiencies in the last number of The Journal of Conchology (Vol. 25, No. 6), which cause the Editor great concern, call for some explanation. This matter was taken up in a personal interview and in correspondence with Mr. C. M. Bell, the Joint Managing Director of Bennett Bros. of Salisbury, and his reply is quoted after each of the following items.

1. Delay in publication: the "copy" was sent to the printers on 10th. February and the Journal was issued on 11th. July. "The reason for the lateness of the publication was that we had some difficulty with the machine used and we have since disposed of the machine concerned." The dispatch of the Journal was further delayed by the Post Office "go slow", but these two contretemps do not fully explain the lapse of six months.

2. The frame on the cover and the items normally printed on the inside of the cover were omitted. The Hon. Treasurer spotted this before the Journal was sent out and arranged for a loose-leaf insert. "There is no real excuse for the omission of the frame on the cover and the items on pages 2 and 3, but the explanation is that these faults were due to a change in the personnel working on your Journal during staff holidays."

3. The titles of the articles are marred by hair-lines, attention to which was drawn when the proofs were returned. "Regarding the hairlines on the titles, this is entirely due to the fact that the type used is of an old discontinued range, which frankly should have been withdrawn before. This particular difficulty will be eliminated on future occasions, subsequent to our agreement for a slightly different type face for the titles."

4. Some letters in the text are heavily printed, suggesting wrong fount; this blemish did not occur in the proofs. "The heavy printing of certain letters is also inexcusable and, although it can easily be explained, it cannot be excused and I apologise most profoundly." This was really due to the carelessness of the operator, who has been reprimanded.

5. The proof of plate 14 was considered to be unsatisfactory, and a new block was made which met with Mr. Scase's approval. Nevertheless the first block was actually used. "The inclusion of the discarded plate 14 is again easily explained but not easily excused. The basic reason for this was that during the staff holidays, which affect every business at this time of year, both the machine minder and the compositor involved were new to your publication." The revised plate will be issued with the next number of the Journal.

6. One or two misprints or mistakes corrected in the page proofs remain in the final text, e.g. Fisher instead of Fischer on p. 229, and Helix aspersa L. (instead of Müller) on p. 242.

The final paragraph of Mr. Bell's letter: "In order to atone in some measure for our poor performance over your last Journal, I would like to offer you a 15% discount on this issue. I would also like to assure you that I will do my utmost to ensure that you have no further cause for complaint."

A. E. Ellis

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Footnote:- "The Journal Vol. 25, No. 6, was issued in July, but there have since been many complaints of non-delivery. Any member, therefore, who has not received a copy should get in touch with the Hon. Secretary."



SNAILS EXTINCT IN ENGLAND BUT LIVING ABROAD

About a score of species of non-marine Gastropoda which formerly occurred in the British Isles are still to be found living on the Continent of Europe or in Asia.

Theodoxus cantianus Kennard & Woodward, M. Pleistocene, which Dr. Kerney informs me is synonymous with T. serratilineiformis Geyer, bears a close resemblance to T. prevostianus (Pfeiffer), inhabiting thermal waters in Austria, Hungary and Croatia.

Valvata antiqua Morris, M. Pleistocene, is regarded as a subspecies of V. piscinalis (Müller) by Ehrmann, who gives its Continental distribution and figures it (1933, pl. 9, fig. 123).

Valvata (Borysthenia) naticina Menke, M. Pleistocene: Germany to S. W. Russia; figured in Ehrmann, 1933, pl. 9, fig. 121. (Borysthenes is the R. Dnieper or Dnepr, Ukraine.)

Acicula (Platyla) polita (Hartmann), U. Pleistocene: France and Denmark to Carpathians and Estonia. See J. Letchworth Nat. Soc. No. 5, p. 4 (1945); Kerney, 1959, 327, figs. 1, 1a. Related to A. subpolita (Gottschick) from U. Miocene (Sarmatian) of Württemberg. A. (Hyalacme) diluviana Hocker occurs in the same deposit near Hitchin as A. polita. (The derivation of Platyla Moquin-Tandon is obscure: if from Gk., it could mean "flat wood", which seems nonsense.)

Paladilhia (Belgrandia) marginata (Michaud), M. & U. Pleistocene: foothills of Pyrenees and Alps, N. Spain, S. France, N. Italy; figured by Sparks, 1957, pl. 3, figs. h-1.

Lithoglyphus fuscus (Pfeiffer), Weybourne Crag: Danube. The closely related or conspecific L. naticoides (Pfeiffer) extends from S. W. Russia to Germany and Latvia, and within recent times has spread to Holland, Belgium and N. France. Figured in Germain, 1931, pl. 18, figs. 514, 515, 517.

(Carychium ovatum Sandberger is synonymous with C. minimum Müller.)

Azeca menkeana (Pfeiffer), M. & U. Pleistocene, is probably a subspecies of A. goodalli (Ferussac). France, Denmark, Germany. See Kerney, 1959, 332, figs. 7, 8.

Columella columella (Benz), U. Pleistocene, is probably a subspecies of C. edentula (Drap.). Arctic-Alpine. Figures: Ehrmann, 1933, pl. 1, fig. 15; Geol. Mag. 94, pl. 7, figs. j-k; Kerney, 1963, pl. 11, figs. f, g.

Vallonia enniensis (Gredler), Cromerian to U. Pleistocene: synonymous with V. costellata (Braun) Sandberger and probably V. tenuilimbata (Sandberger); may be a variety of V. pulchella (Müller). Figures: Sparks, 1953b, 112, figs. e-h; 1957, pl. 3, figs. m-o.

Vallonia tenuilabris (Braun), U. Pleistocene: Siberia and possibly E. Turkistan and N. China. Sparks, 1953b, 112, figs. a-d.

Lauria sempronii (Charpentier), Holocene: S. Europe, Pyrenees to Caucasus, mainly montane. Kerney, 1957, J. Conch. 24:183.

Clausilia parvula (Studer) Ferussac, U. Pleistocene: Central Europe. Figures: Germain, 1931, pl. 13, fig. 370; Ehrmann, 1933, p. 68, fig. 42.

Clausilia pumila Pfeiffer, M. & U. Pleistocene: Central Europe. Ehrmann, 1933, pl. 2, fig. 34.

(Clausilia cruciata Studer was recorded in error (Kerney, 1959, 333))

Clausilia (Plicaphora) ventricosa (Draparnaud), M. & U. Pleistocene: Central Europe. Figures: Germain, 1931, pl. 13, figs. 393, 394; Ehrmann, 1933, pl. 2, fig. 35.

Laminifera (Neniatlanta) pauli (Mabille), M. Pleistocene: Pyrenees. Kerney, 1959, figs. 10, 11; Germain, 1931, pl. 13, figs. 389, 390.

Graciliaria (Ruthenica) filograna (Rossmässler), M. Pleistocene: Central and E. Europe. Kerney, 1959, fig. 6.

(Lindholmiola lens (Ferussac): the record from the Waltonian Crag (Geol. Mag. (3) 1:262) is too improbable to be accepted.)

(Hygromia (Zenobiella) rubiginosa (Schmidt): the record from the Norwich Crag (Proc. Malac. Soc. Lond. 3:191) is probably based on incorrect determination.)

Hygromia (Monachoides) incarnata (Muller), Waltonian Crag: Central Europe. Germain, 1931, pl. 5, figs. 118, 119.

Helicella (Xeroplexa) geyeri (Soos), Norwich Crag and U. Pleistocene: Germany, Switzerland, Belgium and probably E. France. Sparks, 1953a; Kerney, 1963, pl. 12, figs. d-f.

Helicella (Helicopsis) striata (Muller), U. Pleistocene and Holocene: Central Europe. Sparks, 1953a.

Discus ruderatus (Ferussac), Cromerian to Holocene: Central Europe, Norway to Spain, N. Italy and Transcaucasia; N. Asia to Kamchatka and Japan. Taylor's Monograph 3, fig. 250.

Nesovitrea (Perpolita) petronella (L. Pfeiffer), Early Holocene: Central Europe, north to Norway and Finland; Siberia, Manchuria. Figure: Arch. Moll. 89:220.

Vitrina (Semilimax) semilimax (Ferussac), Cromerian to U. Pleistocene: Alpine and Central Europe, S.W. to Pyrenees. Kerney, 1959, 334.

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#### Acknowledgment

Dr. M. P. Kerney has kindly read this article and made some additions and emendations.

Director: D. G. Pickrell



Leith Hill consists of an escarpment of the Hythe Sandstone which dips gently to the north, the soil being neutral to acid.

A small party and one fly-eating dog assembled at Dorking North station and proceeded by 'bus to Abinger. In the woods between Abinger and Friday Street the following species were found in a pile of logs: Discus rotundatus, Arion intermedius, A. subfuscus, A. circumscriptus, A. hortensis and A. ater (agg.) - jumped on by previously mentioned fly-eating dog - Euconulus fulvus, Oxychilus alliarius, a small Limax maximus and many Limax tenellus\*\*\* also Clausilia bidentata under a gate post.

The party then moved on to the lower pond at Friday Street finding Planorbis albus, Pisidium nitidum and one P. obtusale. In a small stream between upper and lower ponds was Ancylus fluviatilis. By the stream in the garden of a derelict house were found Agriolimax reticulosa, Cochlicopa lubrica, Hygromia hispida, Cepea hortensis, Limax maximus, Helix aspersa.

After lunch, in the vicinity of the upper pond Oxychilus cellarius, O. alliarius, Retinella nitidula and Hygromia striolata were found. In the upper pond itself Lymnaea peregra, Planorbarius corneus, Planorbis albus, Spharium corneus were collected.

The ponds at Wotton Park were visited but were found to be far too acid for any mollusca.

The party walked to the top of Leith Hill for tea, after which we descended to Coldharbour visiting an old chert quarry where Arion intermedius was obtained. At Coldharbour on a rubbish tip Discus rotundatus, Vitrina pallusida and also Limax cinero-niger\*\*\* were found. The party then returned by 'bus to Dorking.

Altogether 29 species were noted.

\*\*\*Proc. Malac. Soc., Vol. 22, p.2.



Director: June Chatfield

On 26th. July, 1964, a few members of the Society visited Albury, near Guildford to record land and freshwater mollusca in the National Grid square 51/04. Several different habitats were visited, and at the end of the day a list of about forty species was obtained.

The Silent Pool is a large pool at the bottom of the steep scarp slope of the North Downs, and it is supplied by a spring from the edge of the chalk. The water was clear and there was generally little aquatic vegetation, although green filamentous algae and Lemna trisulca (Ivy-leaved duckweed) were abundant in some areas at the surface film. The molluscan fauna of the pool was disappointing, Lymnaea peregra was the only aquatic living species found, although dead shells of Valvata cristata and Pisidium milium occurred in the bottom mud.

Terrestrial molluscs were found under logs, in leaf litter, at the base of trees and on banks in mixed woodland surrounding the Silent Pool and extending almost to the top of the steep scarp slope of the chalk. Species found were:- Pomatias elegans, Carychium tridentatum, Cochlicopa lubrica, Acanthinula aculeata (in leaf litter on the edge of the Silent Pool), Ena obscura, Marpessa laminata, Clausilia bidentata, Cepaea hortensis, C. nemoralis, Helix aspersa, H. pomatia, Hygromia striolata, H. hispida (on the bank of the Silent Pool), Monacha cantiana (on a grassy bank near a field), Punctum pygmaeum (in leaf litter at the edge of the Silent Pool), Discus rotundatus, Arion intermedius, Arion ater agg., Arion rufus, Vitrea contracta, Oxychilus draparnaldi, O. cellarius, O. alliarius, O. helveticus, Retinella radiatula, R. pura, R. nitidula, Vitrina pellucida, Limax maximus, L. cinereoniger, Lehmannia marginatus, Agriolimax agrestis agg., A. reticulatus.

New pine wood plantations were seen near the top of the scarp slope, but the molluscs of these woods were not investigated. The recent plantation of pine woods in place of beech and oak woods in Surrey may well reduce the molluscan fauna in considerable areas.

A grassy bank alongside shrubby ground on the slope of the chalk was investigated. The molluscan fauna of this bank was surprisingly small; Cochlicopa lubricella was the only species to be at all frequent, although a few other species were recorded.

Later in the afternoon, after tea, the party visited Newlands Corner and investigated some chalk grassland. This yielded:- Cochlicopa lubricella, Pupilla muscorum, Vallonia excentrica, Hygromia hispida, Helicella caperata and H. virgata.

On a stony pathway surrounded by nettles on the edge of the chalk near Weston Wood, many broken shells were seen, these representing the site of a bird's anvil. The species broken were:- Cepaea hortensis, Arianta arbustorum and Monacha cantiana, in order of abundance.

The day's collecting came to an end with the investigation of an old Gault clay pit at Weston Wood. This pit is gradually being filled with sand from the Albury Sand Pit. It contains two ponds, a small one on the sand which yielded no molluscs, and a larger one on the Gault which yielded many specimens of Lymnaea peregra, but no other species of mollusc. A few interesting fossils were found in the Gault clay. There were three types of ammonite:- Mortoniceras inflatum, Beudanticeras beudanti and a possible Hysterocheras sp.. Other fossils were internal casts of gastropods (indetermined) and fragments of Serpulid worm casts.

The excursion was both a pleasant and successful one. However, due to the hot dry weather, many species were not found, and thus there is plenty of opportunity for further field work at Albury.

-68- NOTE: Arion rufus was determined on dissection of the genitalia.

POSTING LIVING MOLLUSCA



Live-stock are classified in the Post Office Guide in the same category as filth, indecent or obscene communications, prints, photographs, books or other articles, as "prohibited articles," with the following exceptions:

Live bees, leeches and silkworms must be enclosed in boxes so constructed as to avoid all risk of injury to officers of the Post Office, or damage to other packets.

Certain parasites and destroyers of noxious insects intended for the control of such insects are admissible if similarly packed, but only when sent by letter post between officially recognised institutions.

Certain other harmless living creatures such as mealworms, earthworms, ragworms, lugworms, caterpillars, maggots and so on may be sent by letter post, but only with the prior permission of the Postal Services Department (H.M.B.), Headquarters Building, General Post Office, St. Martin's-le-Grand, London, E.C.1, and in packing approved by that Department.

Presumably Mollusca would rank as "so on." At the risk of incurring a charge of incitement to commit a felony or misdemeanour, one ventures to recommend that a blind eye be turned on these tiresome regulations. Provided the snails are securely restrained, so that they cannot bite the postman, and the packet is not provocatively labelled "Live Stock," detection is improbable. Furthermore, to an undiscerning official a contracted living snail would barely be distinguishable from a dead shell, and even slugs exhibit little evidence of animation. So we may now proceed to consider the best methods of insuring the comfort of our specimens in transit.

The larger land snails are best sent in cardboard boxes and kept dry; they will seal the mouth of the shell with an epiphragm and survive for quite a long time. For those of medium size, match-boxes are convenient. Minute kinds should be sent in specimen-tubes, perhaps with a little moss. Succinea, Vitrina and Zonitidae should be sent in tins or tubes with damp moss, filter-paper, or clean blotting paper, but excessive moisture must be avoided. Slugs should be sent in tins, such as tobacco tins, with a piece of lettuce or cabbage leaf. Mycophagous slugs may be provided with a piece of mushroom or toadstool, which would not have time to putrefy on a short journey.

Freshwater Mollusca should be packed in tins or tubes with a little damp

pondweed, such as Elodea, but should not be in water. Unionidae can be put in polythene bags and packed in crumpled newspaper or wood shavings. I have no experience of sending marine Mollusca by post, but presumably they will travel well if packed in moist seaweed.

Avoid over-crowding and excessive dampness. There is no real need to supply food, and it is not necessary to pierce air holes in the container, in fact this should not be done. It is inadvisable to post living Mollusca during very hot weather. Make sure, of course, that the packet is securely fastened, e.g. with celotape, and correctly addressed. These hints apply to inland postage only. Overseas mail, even sample post, is liable to be inspected, so the contents should at any rate appear to be lifeless, unless all the regulations have been scrupulously complied with.

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A. E. Ellis



INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

Notice is given of the possible use by the International Commission of its plenary powers in connection with the designation of type species for Purpura Bruguiere, 1789, and Muricanthus Swainson, 1840, and the validation of Ocenebra Gray, 1847, and Thaisidae Suter, 1913 (all Gastropoda), reference number Z.N.(S.) 1653. Particulars will be found in Bulletin of Zoological Nomenclature, vol. 21, part 3. Any comments should be sent in duplicate before 7th. February 1965 to the Secretary of the International Commission, c/o. British Museum (Natural History), Cromwell Road, S.W.7.

REQUEST

Unfortunately the Natal Museum's reference library has a few gaps in its otherwise complete series of the Proceedings of the Malacological Society of London. All missing parts are now out of print, so that the Museum wishes to appeal to readers of this Newsletter to help in completing this series. The following parts and volumes are required:

Proc. Malac. Soc. Lond.

Vol. 28, parts 1, 4, 5, 6, 1949/51;

Vol. 30, all parts, 1953/54;

Vol. 31, parts 1 (Aug. 1954), 2 (Dec. 1954), 3-4 (June 1955);

Vol. 32, parts 1-2 (Aug. 1956), 3 (Dec. 1956), 4 (March 1957),  
5 (Aug. 1957);

Vol. 34, part 1 (April 1960).

Offers of any or all of these parts and volumes will be welcomed by the Curator of Molluscs, Natal Museum, Loop Street, Pietermaritzburg, Natal, South Africa. The Museum is prepared to pay reasonable prices for copies in fair condition.

CATALOGUES RECEIVED A very complete list of Pacific gastropoda with prices from Mr. P. W. Clover, [REDACTED] Luzon, Phillipine Isles.

Dr. K. H. Barnard, of the South African Museum, has described a further 22 new species of marine Mollusca, which were obtained off the coast of Natal by the s.s. Pieter Faure between Dec. 1900 and April 1901, in Ann. Natal Mus. 16:9-29.

WANTED

J. Conchology, vol. 5, any parts except nos. 1-5 or pp.221-224, 289-304.

FOR SALE OR EXCHANGE Complete copy of Ashford's The Darts of British Helicidae. (J. Conch. vol. 4, 1883-1885).

Also J. Conch. vol. 1, pp.249-250.

Mrs. McMillan, [REDACTED] Cheshire.

NUMBERING OF NEWSLETTERS

In response to queries from members who wish to bind their copies of the Newsletter, the compiler suggests that 10 numbers be regarded as forming 1

volume, although issues will continue to be numbered consecutively and references such as "Vol. 1, No. 4" will not be used in order to avoid any possible confusion with references to the Journal.

Dr. H. E. Quick, whose health at present prevents him from coming to meetings, would welcome visits from other members when they are in the district. His address is [REDACTED] Reading.

#### ADVERTISEMENT

Have a different Easter holiday! Sea-dredging, Island of Arran, Sannox, possibly Lamlash. Pay your own expenses, stay small hotel, or bring tent. Write to Alison Rutherford, [REDACTED] Dunbartonshire.

#### EXCHANGE

Senor Cesar Fabregas Tejero, [REDACTED] (Lanzarote), Canary Islands, Spain, wishes to exchange tropical marine gastropoda with other collectors.

#### CORYNDON MUSEUM, NAIROBI

Transference of Spirit Material: Since conditions in East Africa at present are not favourable for the curation of spirit material and I have returned to England, it was considered advisable to transfer all spirit material of African Mollusca formerly housed in Nairobi to the British Museum (Natural History). This material had never been formally registered as part of the Coryndon Museum collections. This note is considered necessary because several type specimens amongst the material transferred were originally cited in the literature as being in Nairobi. The 'dry' collection of shells is still housed in the Coryndon Museum, and consists of the Museum's original collection, together with specimens which I accumulated during some 15 years in East Africa.

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B. Verdcourt



## THE VIVIPARIDAE

This large and varied family of freshwater gastropoda is by virtue of its having two species (V. viviparus (L.) and V. contectus (Millet)) living in English rivers, well known to British collectors. The Viviparidae enjoy an almost world-wide distribution, being found on all the continents except S. America and Antarctica. It is divided into two subfamilies. Viviparinae, inhabiting Europe, Asia Minor, northern Asia and N. America, and Bellamyinae in Africa, tropical Asia and Australia. They differ in the male sexual gland, which is interwoven with the digestive gland in the Viviparinae, but free from it in the Bellamyinae. Furthermore the embryonic whorls of the shell are banded in the former, but not in the latter.

The only common major factor in their distribution is through water channels and some have been introduced by man, e.g. Bellamya malleata (Reeve) a large Japanese species, into the Western United States. Low temperature may play an important part in their distribution as it exists at present, but beyond the fact that they do not occur in the Polar regions, there is apparently no definite observation on the influences of this factor.

As the name suggests, the family is viviparous and according to some authors ovo-viviparous. The sexes are separate. They are operculate, having a horny or semi-calcareous operculum. Respiration is entirely aquatic and is performed by means of a ctenidium. Food consists of aquatic plants, algae, etc. They occasionally become carnivorous. In many countries where they occur, these snails are used as food by man and domestic animals.

Distribution: Europe. In Europe these snails do not extend their range beyond lat. 50°N. in Scandinavia and this appears to be their northern limit also in Russia. In Asia Minor they extend to about 30°E. Only one species is found south of the Appenines and none are known from the Iberian Peninsular. Bourguignat divided the European species into 7 sub-groups and no less than 50 species! Kobelt however recognised only two main types, V. viviparus and V. contectus.

America. None are known living either in Central or South America. One

small isolated species, V. Germondiana (Orb), occurs in Cuba.

In North America there are besides Viviparus s.s. four endemic genera, Tulotoma Haldeman, Campeloma Rafinesque, and Lioplax Troschel. The two common European species have been introduced into the eastern states and two Japanese species into the western seaboard.

Asia. None are found in the greater part of Asia Minor, Arabia, Afghanistan, Tibet, the whole of central Asia, Mongolia, the greater part of China, and with the exception of the Amur Basin, the whole of Asiatic Russia.

In India, the Bellamya bengalensis group is common and widely distributed, whilst the Chinese species B. chinensis and the Japanese, B. malleata and B. japonica are among the largest forms known. A small smooth unbanded species B. javanica is typical of the Bellamya found throughout the Philippines and the Greater Sunda Islands, although Lake Lanas on the Philippine island of Mindaneu has a number of peculiar endemic species.

Australia. Known only from Northern Territory, Queensland and parts of eastern Australia. A very unusual form (B. fragilis Preston) with a strongly keeled and paper-thin shell, has been described from New Guinea, living 8000' up in the Central Arfak Mountains.

Africa. Bellamya is widely distributed in tropical Africa. The typical form is B. unicolor (Olivier) which is found fossil in deposits of Miocene age and is now found living in all the great lakes and major river systems. In Lake Tanganyika the large and striking genus Neothauma is common and another species N. ecclesi has recently been discovered in Lake Nyasa. Numerous subspecies of B. unicolor have been described from Lake Victoria. Lake Minerva has a very distinct species, perhaps allied to Neothauma.

Fossil Viviparidae. Many fossil species, attributed to this family have been described, especially from rocks of Cenozoic age. The earliest fossil records are from Jurassic strata of the Inferior Oolite (Bajocien). The record of a supposed form of Viviparus (V. carbonarius Garwood) from the Carboniferous of Yorkshire is undoubtedly based on incorrect identification. It is also now considered most unlikely that the Jurassic species (V. scoticus Tate) was correctly referred to this family. From the Cretaceous onwards, however, there is no doubt that members of this family became definitely separated from the ancestral marine and estuarine forms and took to a freshwater life.

The first extensive occurrence of Viviparidae, and one which can without any doubt be assigned to the family, is that of the Purbeckian forms of Upper Jurassic age and those found in the Wealden strata of Lower Cretaceous age, in south west England. Three species form the main constituents of the famous Purbeck Marbles.



During the Tertiary many species were living in most parts of the world. In Britain, the Bembridge Beds of Oligocene age, in the Isle of Wight contain several species of which V. lentus (Solander) is typical. This species is also found in the Woolwich Beds of Lower Eocene age.

The magnificent series of Viviparus found in the Pliocene of Slavonia have attracted attention from early times and the literature on them is very extensive. They have been frequently referred to in studies on evolution. The highly sculptured and otherwise specialised species of the Pliocene lakes of Eastern Europe had been produced under very favourable lacustrine conditions and were not able to adapt themselves to the changing conditions, and all perished without leaving any descendants whatsoever. The less specialised smooth-shelled species persisted and spread over the entire area, giving rise to such species as V. diluvianus (Kunth) found in Pleistocene deposits in Britain and still living on the continent, and V. medius (Woodward), and finally to V. viviparus (L) and V. contectus (Millet). Widely distributed over this area today.

Elsewhere fossil Viviparidae are found in countries where the family is still living, the exception being South America, where the discovery of a true Viviparus in Upper Cretaceous deposits in Brazil and another from beds of Tertiary age in Chile, suffice to prove that the family was represented there at least until the Early Tertiaries. The causes which lead to its extinction are uncertain, as other freshwater molluscs like the Ampullariidae still live there. Possibly the flooding over the area in which the family flourished by

the sea was responsible for its disappearance.

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December 1964

Produced by 'The Archaeological Society of Great Britain and Ireland'

FOR YOUR ATTENTION - PLEASE

Members are reminded that subscriptions for 1965 are due next January 1st. (except for those who joined in 1964 - since last October).

Members of the Society have not found increased since 1964, in spite of rising costs of all things. It has been an aim of the Society to keep subscriptions at their present level so long as this is now approaching the limit of an increase, but the Secretary has been advised by the Hon. Treasurer that an increase is necessary; during the past year, the Hon. Treasurer had to send 63 first, 47 second and 30 third reminder forms, before subscriptions were paid.

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