THE CONCHOLOGISTS' NEWSLETTER

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J. G. Bruguiere 1750-98

In every age there have been men whose contribution to history was less in their personal achievement than in the inspiration which they gave to others. Samuel Johnson was one of these; his writings in all their literary perfection are very little read these days and apart from his Dictionary, his personal achievement is small; but he had a wonderful gift of arousing talent in others and imbibing his friends with an enthusiasm which formed perhaps the main contribution to one of the richest literary eras the world has known.

It seems to me that in some ways a similar influence can be seen in the life of Bruguiere, short though it was and dogged by ill-health. It is only rarely these days that we notice the suffix 'Brug.' - or more probably '(Brug.)' - after the specific name of a shell, and these scanty remains indicate little of the man's contribution to science. Truth to tell, much painstaking work of his has usually been attributed to one or other of his contemporaries.

A scientist's job, having verified his findings, is to impart them to the world so that they may be shared by other scientists. Unfortunately, human nature being what it is, unless this is done in proper form, not only the information but the credit also, may be appropriated by others, and this is what seems often to have happened to this generous individual. It is now almost impossible to trace the whole scope of his work, but we can gather many clues in cases where other zoologists, notably Lamarck, honourably acknowledge the help or inspiration which he gave them. A great deal of Lamarck's best known work is, in fact, based entirely on a solid foundation of Bruguiere's development of the 'Vermes - Testacea' system, Linne's preliminary attempt to sort out what must in those days have seemed the incomprehensible muddle of the invertebrate world.

Bruguiere's work on these lines, fragmentary and incomplete though it is, became of the utmost importance when the direction of further progress became clear. Geoffrey Saint Hilaire said in his 'Fragments Biographiques' that Lamarck's monumental researches into the invertebrates which brought him so much fame, were undertaken only to please and justify his friend Bruguiere. De Blainville also, in his 'Manuel de Malacologie' 1825, freely acknowledged that his work was written on principles laid down by Bruguiere.

Eighteenth century Montpelier was the birthplace of many well-known naturalists, among them d'Argenville, Grateloup, Rondelet and Moquin-Tandon, and it was here that Jean Guillaume Bruguiere was born in 1750. He took his doctor's degree at Montpelier, his principal study at that time being Botany, and embarked soon after, in 1773, with Kerguelen's expedition to the South Indian Seas. This engaged him for seven years, the climate and living conditions on board ship permanently ruining his health.

Back in Paris, Bruguiere proceeded to study the enormous collections of Caloune with the object of sorting out the 'Vermes - Testacea' for the great 'Encyclopaedie Methodique' of Diderot and d' Alembert, one of the first works to be based entirely on the Linnean system. Many famous scientists of the day contributed largely to this work, and it is not easy to sort out the credits. Much study has been put into the problem, notably by Sherborn, and it does appear that Bruguiere's contribution was a large one. Volume X comprised the last part of Latreille's Insects and the 'Histoire Naturelle des Vers', and it seems that Bruguiere wrote Part I by himself and Part 2 in conjunction with Lamarck and Deshayes. He also wrote the article on Conus in Part 3, in which priority of the species was later granted to Hwass. The

two men co-operated in classifying the latter's enormous collection and Bruguiere, who appears to have done all the written work himself, willingly gave all the credit to his colleague.

It must have been during this period that his influence over Lamarck was at its greatest, and his taxonomic work did much to open the way for Cuvier's establishment of the anatomical classification which, together with the Linnean system, is the foundation of all modern zoology.

It is to Bruguiere's advice that we owe the phyla of the Mollusca and Echinodermata, and it was he too, who showed Lamarck the need for separating the families of the Cephalopoda. Indeed, until Bruguiere suggested it, there was no such taxon as 'the family' although Cuvier's 'genera' usually concerned groups of much the size of what we now know to be families.

Lamarck's work on the 'Vermes - Testacea' was interrupted by the French revolution, and Bruguiere's unambitious life of solid support for his scientific friends underwent its last change, when Minister Roland asked him to join a scientific expedition to the Ottoman Empire. He undertook the task, although he must have suspected that its acceptance would probably be equivalent to signing his death warrant. Conditions met with during the course of the expedition were indeed bad, and when he arrived back after six years it was only to die very shortly afterwards at Ancona in 1798, aged 48.

His collections were entrusted to G. A. Olivier, the entomologist of the expedition, and were later put in order by de Ferussac who used them as a basis for his monumental 'Histoire Naturelle des Mollusques' 1819.

Zoology surely owes much to the modest nature and perceptive genius of Bruguiere.

T. E. Crowley

The Journal of Conchology

The medium of the Newsletter enables the Editor of the Journal to give an explanation to members of the delay in issuing the second number of Volume 25. It was intended that this should be published before the end of 1961, but this was not possible, as insufficient material had been received for a full number. All the material then in hand was sent to the printer on 13th. December, and some papers received subsequently were despatched in January. During the first week of February galley-proofs of the 'copy' which had been sent in January were received, but not of that sent in December. Inquiries made by Mr. Raffray revealed that the papers sent in December had never been received by Messrs. Bennett Bros. and could not be traced. It may be relevant that shortly afterwards a postman at Salisbury was charged with the theft of mail-bags.

It was accordingly necessary to request all the authors who were involved in this lamentable affair to supply copies of their papers and illustrations, but further delay in publication was inevitable. No one regrets all this more than the Editor, but such a contretemps could not have been foreseen or prevented.

A. E. Ellis

Field Meeting at West Runton and Overstrand, North Norfolk, March 24th. 1962

Director: Mr. P. Cambridge

Fifteen members and friends (including four members of the Paramoudra Club) assembled at West Runton Station. The object of the meeting was to examine fossiliferous Upper Pleistocene beds in coastal sections. In excellent weather the party descended to the shore at West Runton Gap. The Chalk platform was seen on the shore, with remnants of Weybourne Crag Stone Bed, containing typical shells, including *Mya arenaria* in the position of growth. Above this much of the section is covered by a shingle beach but the main object of the meeting, the Upper Freshwater Bed (type section of the

Cromerian Interglacial) was well exposed at the base of the cliff. Members were able to see typical fossils - Viviparus, Ancylastrum, Valvata and Unio - but the shells were mostly too fragile to extract without breaking.

The party walked along the foreshore to East Runton Gap, noting excellent sections in the North Sea Drift as they went. The Boulder Clay and sands in these cliffs contain broken shell fragments - mainly Macoma balthica, Mya, Cardium edule and Mytilus. They then proceeded by car and bus, through the red brick Victorian town of Cromer, to descend to the beach again at Overstrand. Here, loose shelly Weybourne Crag was seen, resting on top of one of the massive Chalk erratics which are seen in the Boulder Clay of this part of the coast. Weighing thousands of tons, these huge masses have been moved, complete with their Crag cover, during one of the Ice Ages. The Chalk in these Bluffs is very fossiliferous and attracted the attention of some members who took away a good selection of belemnites, sponges, brachiopods, etc.. Indeed so attractive did this section prove that a last minute sprint was necessary to get back to the bus stop.

Only a few species of recent shells were noticed on this part of the coast. A few 'cuttle fish bones' (Sepia officinalis L), a valve of Mytilus edulis L and many dead Petricola pholadiformis Lmk still in their chalk crypts were seen. The only living species were Littorina soxatilis (Olivi) and L. littorea (L)

P.C.

Field Meeting at Shell Bay, Dorset, April 7th. 1962

Directors: Mrs. T. E. Crowley and Mr. C. P. C. Paul

A party of seven members and friends met at Sandbanks and proceeded by the ferry to Shell Bay. The abundance of shells at Shell Bay is dependent on the interaction of the longshore drift and the strong tidal currents flowing in and out of the narrow entrance to Poole Harbour. Normally the currents deposit shells on the western side of the entrance (i.e. Shell Bay) but on rare occasions they turn up in equal abundance at Sandbanks the other side. The majority of shells are dead and worn but excellent fresh examples can be found on searching and at low tide live material can be collected in the vicinity of the old Quay - a mass of jumbled rocks with a fairly typical rocky shore fauna of gastropods.

Conditions were not ideal on Sunday the 7th. as a strong N.W. wind was blowing sand off the sand dunes onto the shore and covering the shells up as the tide receded. However, several interesting species were found including Velutina velutina - a species which I have never seen from Shell Bay before. Several of the party were in Dorset for the weekend and managed to collect on Saturday as well, on the two days collecting a considerable fauna was recorded and the complete list is being prepared by Mr. T. E. Crowley for the Marine Census. Notable finds included complete (i.e. both valves) examples of Pandora margaritacea, Lutraria lutraria, Laevicardium norvegicum and Gari depressa. Single valves of the first three species are common. The elephant's tusk, Dentalium entalis was found and the visit was marked by the extreme abundance of razor shells, Ensis ensis, Ensis arcuatus and Solen marginatus. Unfortunately the tide did not recede far enough for us to test Mr. Raffray's method of collecting live razor shells with salt. The party dispersed for the journey home at about 4.30 p.m.

C.P.C.P.

Commensual Crabs in Mytilus edulis L

While cleaning out three shells of M. edulis several small crabs were found living inside the shell with the mollusc. One mussel had three individuals living with it; two dirty brown about 3/16 inch in size and one pink ½ inch in length. These were all identified as pea crabs, Pinnotheres sp., the difference being sexual, the males being smaller than the females. In J. Sinel (1906) two species are given as British, one usually associated with Ostrea edulis L and the other confined to Pinna fragilis Pennart (= P. marina).

Reference: J. Sinel, 1906, An Outline of Natural History of Our Shores. Swan Sonnenschein & Co., London.

C. A. Raffray

BRIEF NOTES

1. Several issues of a Newsletter issued by the Pacific North-West Shell Club have recently been received from the U.S.A. This Newsletter, which is issued approximately every two months, was first published in January 1961 and much of the material in it is of considerable use by conchologists generally. Articles include short biographies of well-known conchologists, lists of shell publications available, notes on the preservation of chitons, radulae, etc., lists of shell dealers, articles on zoological theory, excellent check-lists and keys of American shells, together with other matter of general interest. Several members already belong to this club.

The Editor is Mr. Thomas C. Rice, Route 2, Box 483, Poulsbo, Washington, U.S.A., and the annual subscription is two dollars.

2. WANTED. Volume V only of Jeffrey's 'British Conchology' (1862-69), either coloured or plain plates. Mr. L. C. Prebble, The Shell Museum, Albert Cottage, Binstead, Ryde, Isle of Wight.

3. Mr. P. Cambridge is preparing a series of colour transparencies of modern British Mollusca; these will cost about 1/6d. each, and will be available towards the end of the year if there is sufficient interest. Any members wishing to avail themselves of this offer should write to Mr. P. Cambridge, 3 Oxford Road, Feltwell, Thetford, Norfolk, as soon as possible.

A Suggested Method for Extracting the Animals from Small High-Spired Shells

Some difficulty is often experienced in extracting the entire animal from its shell by the usual method employing a pin, and portions of the body left in a transparent or translucent shell spoil its appearance. The following method has been found useful in the cleaning of small snails, especially such species as Limnaea truncatula.

After boiling, and the removal of as much of the animal as possible, the remaining portion is washed out with a strong jet of water produced in the following way. A six to eight inch long piece of soft rubber tubing of suitable bore is attached to a cold water tap which is then allowed to run at moderate force. Two thirds of the lower end of the tube is compressed between finger and thumb, leaving a third of the orifice open to pass a strong jet of water. The shell is held with the long axis exactly in line with the stream of water which, directed into the aperture, washes out all residual soft parts at once, without damaging the shell. This method has been found most useful with small, high spired shells, and works best when the foot has been removed, although it may be employed to extract the whole animal in most cases, if required.

Miss J. Crowley

Miss J. Crowley

INTRODUCTION TO MOLLUSCAN TAXONOMY

(4) Taxonomic History

Taxonomy is the science of the classification of all organisms. The term is derived from two Greek words, meaning arrangement and law, and was proposed by de Candolle in 1813. It is built upon the basic studies of morphology, physiology, ecology and genetics.

Since the time of Linnaeus the number of known species of animals has increased enormously. Including sub-species there are probably more than 2 million named forms and new ones are being described at the rate of 10,000 per year. About 80,000 molluscs have been described.

The history of taxonomy goes back certainly to the ancient Greek scholars, notably Hippocrates (460-377 B.C.) and Democritus (465-370 B.C.) who included animals in their studies, however it was Aristotle (384-322 B.C.) who first brought together the knowledge of his time and formulated it into the beginings of a science. He did not propose a formal classification, but provided the basis for one in his statement that "animals may be characterised according to their way of living, their actions, their habits and their bodily parts". The Aristotelian philosophy - it can scarcely be called a system - sufficed for students of animals for nearly two thousand years. It is only in the works of the immediate predecessors of Linnaeus that we find any attempt at a scientific classification.

Of all the earlier authors, the one that had the greatest influence on Linnaeus was John Ray (1627-1705), who recognised the difference between the genus and the species. The type of taxonomy that is based on the study of local faunas reached its peak in the great Swedish naturalist Linnaeus (1707-1778) whose work so influenced subsequent students that, with much justification he has been called the father of taxonomy. In the 10th. edition of his great work 'Systeme Naturae' (1758) the binominal system of nomenclature was for the first time consistently applied to animals, and this work became the foundation of systematic zoology. In addition to his new system of nomenclature, the work of Linnaeus was characterised by clear-cut species diagnoses and by the adoption of a hierarchy of higher categories: genus, order, class. It dominated taxonomy for the next century and most of the essentials of the Linnaean method are still the components of modern taxonomy.

Evolutionary thought, already widespread in the 18th. century (Buffon, Lamarck and many others), was to play a large part in the development of taxonomy, as a result of the stimulus it gave to biological work and the presentation to the Linnaean Society in 1858 of the joint views of Charles Darwin (1809-1882) and Alfred R. Wallace (1823-1913) on the theory of natural selection in one of the most dramatic episodes in the history of science. The publication of Darwin's 'On the Origin of Species' (1859) lead to the search for 'missing links' and 'primitive ancestors', efforts which, although mainly unsuccessful, were not wasted because they resulted in the discovery of many new life forms. Not only were new species and genera discovered daily, but with reasonable frequency even new families or orders, and the result of such exciting discoveries attracted the keenest minds to the field of taxonomy.

The wealth of nature is not however inexhaustible and the period of major new discoveries in the higher animals was over well before the end of the 19th. century. It was followed by the most recent phase in the history of taxonomy, the study of evolution within species. The typological concept of the species was abandoned and replaced by a dynamic, polytypic concept. Interest reverted to the study of variation within populations and the slight differences between adjacent populations. This type of study was commenced in the second half of the 19th. century and amongst malacologists may be mentioned particularly in this connection, Kobelt and Gulick the Sarasim brothers and Crampton, whose biometrical studies in the local geographical variations in the genus Partula (1916) have become classical.

The taxonomic work of the present century is a continuous refinement of the methods and concepts developed in the 19th. Current taxonomy is customarily referred to as the new systematics (Huxley, 1940), but it must not be forgotten that its roots go back to the pioneer work so well done by the great naturalists of the first half of the 19th. century.

Further reading. Huxley, J. S., 1940. The New Systematics. Clarendon Press, Oxford.
Mayr, E., 1942. Systematics and the Origin of Species. Columbia University Press, New York.
Ramsbottom, J., 1938. Linnaeus and the Species Concept. Proc. Linn. Soc., London, 150th. Session.
Raven, C. E., 1942. John Ray, Naturalist. His Life and Works. Cambridge University Press.
Crampton, H. E., 1916. Carnegie Inst. Wash. Pub. 228, and 1932, ibid 410.

T. Pain

Field Meetings

The following field meetings have been arranged for 1962:-

Sunday July 15th.	White Downs, near Dorking, Surrey. (For land mollusca of Chalk Downs) Depart Victoria 10.18 a.m. - meet Dorking North Station 10.54 a.m. Thence by 'bus. Leader: Mr. A. W. Jones.
Sunday August 25th.	Amberley Wild Brooks, Sussex. (General freshwater fauna) Leader: Mr. M. Goodchild.
Sunday September 16th.	River Deben, Woodbridge, Suffolk. (For Littorina aestuari) Leader: Mr. D. Hepple.
Sunday October 7th. (date subject to alteration)	Butley and Sudbourn Park, near Orford, Suffolk. (To examine and collect from the Coralline Crag) PARTY LIMITED TO 8. Leader: Mr. P. Cambridge.

Members wishing to attend any of the above should contact the field meetings secretary at least one week prior to the date of the meeting to obtain full details of transport. A packed lunch should be brought to all meetings; tea is normally available.

T. Pain
Hon. Secretary, Field Meetings

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