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Report of the British Association for the Advancement of Science.

London.

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64th Meeting (1894): <https://www.biodiversitylibrary.org/item/95243>

Article/Chapter Title: Suggestions for a new classification of the Polychaeta

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Subject(s): Annelida, taxonomy

Page(s): Page 1, Page 696, Page 697

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REPORT

OF THE

SIXTY-FOURTH MEETING

OF THE

BRITISH ASSOCIATION

FOR THE

ADVANCEMENT OF SCIENCE

HELD AT

OXFORD IN AUGUST 1894.



LONDON:

JOHN MURRAY, ALBEMARLE STREET.

1894.

Office of the Association: Burlington House, London, W

6. Such septation may have taken place repeatedly in the same line of descent.
7. The sporogonial head as a whole is the correlative of the strobilus or flower, and the apex of the one corresponds to the apex of the other.
8. The progression from the one to the other depended upon (a) septation by formation of sterile partitions, (b) eruption of the surface to form appendicular organs upon which the sporangia are supported (sporangiophores, sporophylls).
9. The sporophylls, originally small and of simple form, were in the course of descent susceptible of great increase in size and complexity of form.
10. In certain cases foliage leaves were derived from sterilisation of sporophylls.

4. *On a Method of Taking Casts of the Interiors of Flowers.*
By Miss N. F. LAYARD.

5. *On the Function of the Nucleus.* By Professor E. ZACHARIAS.

6. *Exhibition of Diagrams.* By Professor LÉO ERRERA.

TUESDAY, AUGUST 14.

DEPARTMENT OF ZOOLOGY.

The following Papers were read:—

1. *On the Blood of Magelona.* By W. B. BENHAM, D.Sc.

The blood of this annelid differs entirely from that of any other chætopod hitherto examined. Instead of a red (hæmoglobinous) liquid plasma, in which float a few nucleated (colourless) corpuscles, or free nuclei, the blood-vessels of *Magelona* are completely filled with very small spherical globules of a madder-pink colour, floating in an extremely small amount of colourless plasma. These globules are not cells; there are free nuclei scattered amongst them, but the coloured globules are not nucleated. The colour of the globules is due to a pigment similar to hæmerythrin; the globules themselves, when shed, exhibit a marked tendency to run together like oil-drops and fuse with one another. This peculiar and rather viscous mass seems to be intermediate, in some respects, between the absolutely liquid, coloured plasma of chætopods generally and the red corpuscles of mammals, which float in a comparatively small amount of colourless plasma; further, the globules in *Magelona* probably originate, as those of mammals do, within cells, from which they are released.

2. *Suggestions for a New Classification of the Polychæta.*
By W. B. BENHAM, D.Sc.

The *Polychæta* may be divided into two grades—(a) the *Eucephala*, in which the prostomium retains its original condition as a lobe overhanging the mouth, and the peristomium shows no tendency to overgrow it. The body segments are all alike. The second grade (b) may be called *Cryptocephala*, as the peristomium grows forward and fuses with, or even entirely conceals, the prostomium, which is greatly reduced. The body segments are differentiated into two groups, indicated externally by the sudden alteration of the chætæ, and internally by certain differences.

The *Eucephala* includes four sub-orders:—

Sub-order 1. The *Nereidiformia* (= *Errantia*, auct.) together with *Ariciidæ*.—In this group, with a few exceptions, the prostomium carries tentacles and palps, and

the peristomium usually carries special cirri. The parapodia are well-developed lobes, supported by strong acicula. The chætæ are jointed (gomphotrichs) or unjointed (holotrichs); no uncini occur. A pharynx exists, which frequently is armed with jaws. There are other characters drawn from internal organs.

Sub-order 2. *Scoleciformia* includes the four families—*Opheliidæ*, *Arenicolidæ*, *Scalibregmidæ*, and *Maldanidæ*.

The prostomium does not carry tentacles or palps, the peristomium is without special cirri. The parapodia are but feebly developed knobs or ridges, and are not supported by acicula. The chætæ are holotrichs. Sensory processes feebly developed or absent. Internally the most marked feature is the diminution in number of the nephridia connected with the incomplete character of the septa. There are no jaws, though the anterior end of the gut may be eversible.

Sub-order 3. *Terebelliformia* (Families.—*Cirratulidæ*, *Chlorhæmidæ*, *Sternaspidæ*, *Terebellidæ*, &c.).—The prostomium carries tentacular appendages (the branchial processes of *Chlorhæmidæ*). The achætous peristomium may carry filamentous processes. Parapodia, mere ridges or knobs; no acicula; chætæ are holotrichs and uncini. Dorsal cirri may be present on a few of the anterior segments, and they function as gills. Buccal region not eversible. Internally the nephridia present a dimorphism, accompanied in many cases by reduction in number.

Sub-order 4. *Capitelliformia* includes the family *Capitellidæ*.

The second grade, *Cryptocephala*, is divided into two sub-orders:—

Sub-order 1. *Spioniformia* (Families—*Spionidæ*, *Magelonidæ*, *Chætopteridæ*, *Ammocharidæ*) retains the prostomium as a small lobe, without definite tentacles or palps, but the peristomium is relatively large, and extends forwards on either side of the prostomium; this segment usually carries very long flexible tentacles. The parapodia are only feebly developed and incomplete; no acicula; the chætæ holotrichs; uncini may occur. Dorsal cirri, if present, become branchial organs. Buccal region eversible, but without jaws. Nephridia but imperfectly known.

Sub-order 2. *Sabelliformia* (*Sabellidæ*, *Eriographidæ*, *Serpulidæ*, *Hermellidæ*). The prostomium is in most cases entirely concealed by the great development of the peristomium, and may be reduced to mere sensory knobs. But the palps are very greatly developed and function as gills. Parapodia only slightly projecting, or mere ridges; chætæ holotrichs and uncini. Dorsal cirri, if present, are branchial, or modified to form a thoracic membrane. Nephridia dimorphic—the anterior pair large, opening by a median dorsal pore on the first segment. The remainder act as genital ducts.

3. *On Museum Preparations.* By E. S. GOODRICH.

4. *On Random Publishing and Rules of Priority.*

By THOMAS R. R. STEBBING, M.A.

Modern zoology is a study of continually extending scope. The literature is vast, costly, and polyglot. The channels of publication are so innumerable that naturalists can scarcely tell which way to turn. In books, in magazines, in reports of learned societies, the information required by one set of students is often so combined with that required by several other sets that the expense of obtaining it becomes prohibitory. The proposal is hazarded that the leading societies should set an example by arranging among themselves for a division of labour, in the hope that by degrees scientific workers might be induced to issue their new discoveries from a few well-recognised centres, instead of insisting on the present liberty of ubiquitous publication. A Committee of the British Association, it is suggested, might usefully undertake a preliminary consideration of what is possible or expedient in this respect; and, while ventilating the larger subject, might also propose a settlement of some debated questions of zoological nomenclature. A special proposal put forward is, that for every country there shall be a single authorised journal to receive the names of new genera and species, with