

Origins of the terms Cephalopod, Cephalopoda and Gastropoda, and early subdivisions of the Mollusca

D.T. Donovan

*Department of Geological Sciences, University College London,
Gower Street, London WC1E 6BT, U.K.*

Abstract. The French vernacular term céphalopode originated with Cuvier in 1795, along with gastéropode and acéphale. It was adopted in English as cephalopode (1811) and cephalopod (1826). The formal terms Cephalopoda, Acephala and Gasteropoda date from an English translation (Cuvier, 1802). Early classifications of Cuvier and Lamarck are discussed.

Keywords. Nomenclature; taxonomy; Mollusca; Acephala; Brachiopoda; cephalopod; Cephalopoda; gastropod; Gastropoda; Pteropoda.

Introduction

Although the names of Orders and other suprafamilial taxa are not governed by the *International Code of Zoological Nomenclature* they are of critical importance for zoological nomenclature and their history is of interest. It is the purpose of this note to trace the origin of the name Cephalopoda and other early subdivisions of Mollusca.

The origin of the nominal taxon Cephalopoda has been placed as far back as 1784 (Salvini-Plawen, 1980, p. 271, citing Schneider, 1784). Jeletzky (1966, p. 11) cites Cuvier (1794). Most other authorities in the present century attribute Cephalopoda to Cuvier and give the year as either 1797 (Engeser, 1990) or 1798 (Naef, 1921; Clarke & Trueman, 1988).

Although Schneider (1784) may have been the first to offer a logical classification of the Cephalopoda, he used the name Octopodia for all the dibranchiate cephalopods. The term Octopodia was probably taken from Linnaeus's use as a species (*Sepia octopodia*, 1758, p. 658). The words cephalopod or Cephalopoda do not occur in Schneider's article.

Schneider divided his Octopodia into two classes, which he did not name:

Classis I. Pedes octoni breves, promuscides binae; venter pinnatus, ossiculum dorsi.

Classis II. Pedes octoni longi basi palmati, absque promuscidibus, pinnis et osse dorsali.

Classis I included *Sepia*, *Loligo*, *Teuthis* and *Sepiola*, Classis II included *Polypus*, *Moschites*, *Nautilus* and *Pompilus*. These were referred to in German as 'Arten', a word now used for species, but also used in a more general sense by earlier German writers. The present writer regards these names as genera, but a different interpretation was placed upon them by Hemming (1954), who concluded that *Octopodia* was a generic name and that the eight subdivisions were species of that genus. The

Commission suppressed *Octopodia* (as a genus-group name) and the other eight names from Schneider (whether as genera or species) in Opinion 233 (1954).

G.L.C.F.D. Cuvier

By the end of the eighteenth century Linnaeus's (1758) subdivision of all invertebrates into Insecta and Vermes was clearly inadequate. 'Vermes: Testacea' included most of the shelled bivalves and gastropods, but also *Argonauta* and *Nautilus*, besides chitons and barnacles. 'Vermes: Mollusca' included *Sepia* and members of several other phyla, including the echinoderms.

The basis of modern classification was laid by Cuvier (1795a), who replaced 'Vermes' by six classes. The term 'Mollusques' was retained for one of these and now corresponded more closely with our modern idea of the group.

In a second paper published in the same year Cuvier (1795b) divided his Classe Mollusques into three Orders: Céphalopodes, Gastéropodes and Acéphales. Céphalopodes were defined as molluscs with a free head supporting an arm crown and including 'les seiches, que je divise en seiches [i.e. cuttlefish] et en poulpes [i.e. octopus]'. Cuvier thought that *Clio* (an opisthobranch gastropod) probably belonged to the group but wrote that as he had not dissected one he could not be certain. *Clio* was later excluded (Cuvier, 1799). The term 'céphalopode' was coined from the Greek words for head and foot because of the use of the arms on the head for locomotion ('... grands tentacules sur lesquels ils marchent'), presumably referring to *Octopus*. Gastéropodes had a free head, two or four small tentacles, and crawled on a muscular ventral foot; the name was derived from the last feature. Cuvier included here the modern gastropods and also flukes, planarians and some protochordates (myxines). Acéphales, without head, eyes or 'ears', included tunicates, barnacles and brachiopods as well as the modern Bivalvia.

The recent comprehensive bibliography of Cuvier's writings (Smith, 1993) does not list any publications by Cuvier in 1794, and only three before 1795. These, all in 1792, were on 'Cloportes' (i.e. woodlice), *Patella* and Diptera, and do not include reference to cephalopods. Jeletzky's assignment of Cephalopoda to Cuvier (1794) therefore appears to be an error.

Attributions of the name Cephalopoda to Cuvier (1797) or (1798) refer to that author's *Tableau élémentaire de l'histoire naturelle des animaux*. The reason for the uncertainty as to the year is that Cuvier's work was dated only 'An 6' [Year 6] according to the French Republican Calendar. An 6 lasted from 22 September 1797 until 21 September 1798 (Holland, 1910). Most bibliographies and library catalogues, including that of the Natural History Museum, London, interpret this as 1798. Smith (1993, record 772) has '[1797/1798?]'. However, a copy in the library of the Natural History Museum has a MS note on the title page which refers to 'Bibl. Franç. Ann 1 no xi, p. 81'. This is the *Bibliographie de la France*, which reviewed Cuvier's book in no. xi, issued on 24 December 1797. The date of publication was therefore between 22 September and 24 December 1797.

The year of publication of the 'Tableau' is of importance for generic authorship, because it gives priority to Cuvier for the genus *Octopus* in 1797 over Lamarck, 1798, as correctly stated by Guerra & Alonso-Zarazaga (1995).

As originally conceived 'Céphalopodes' comprised only the subdivision later named Dibranchiata (Owen, 1832), and now generally referred to as Coleoidea (Bather, 1888). The same subdivision of molluscs was used in Cuvier's 'Tableau' (1797) as in 1795, and the definition of 'Céphalopodes' was also the same. However, the scope of the group was now extended to include forms with an external shell: *Nautilus*, the fossil ammonites and orthoceratites. Cuvier also included a third group of fossils, 'Camérines', these in fact being Foraminifera.

Cuvier's inclusion of *Nautilus* in his céphalopodes followed Linnaeus (1758, p. 709), who after *Nautilus* had written 'Animal *Sepia*?' and cited Rumpf (1705), who had figured the soft parts. By 1797 Céphalopodes comprised the modern group as then known, with the addition of some Foraminifera.

Cuvier (1804) introduced the new order ptéropodes for certain molluscs without an external shell, including *Clio*. In the first volume of his *Leçons d'anatomie comparée* (1800) Cuvier had retained the three subdivisions of molluscs which he had set up in 1795. In the third and fourth volumes (1805a,b) he employed ptéropodes and added the new term brachiopodes (for the térébratules and lingulées), these still being classified as 'mollusques acéphales'.

J.B.P.A. de M. de Lamarck

While Cuvier's classification of the Mollusca was founded primarily on the soft parts, Lamarck (1792) had explicitly rejected this approach, arguing that, since the animals which inhabited them were known only for a small fraction of shells, the majority of shells in collections would remain indeterminate. His first classification (Lamarck, 1799) was therefore Linnaean. In the order Testacées, 'Coquilles univalves uniloculaires' included *Argonauta* as well as modern gastropods, while 'Coquilles univalves multiloculaires' included *Nautilus*, *Spirula*, *Belemnites* and several more fossil genera. 'Coquilles bivalves' and 'coquilles multivalves' each included a wide range of organisms. Lamarck (1799) did not use the term 'céphalopodes', or Cuvier's other subdivisions of 1795.

Two years later Lamarck (1801) made a concession to Cuvier's approach, making his primary division into Mollusques céphalés and Mollusques acéphalés. This enabled him to include the forms without obvious shells, the squids and octopuses which had been Cuvier's original céphalopodes. 'Mollusques céphalés nus' included *Sepia*, *Loligo* and *Octopus* but also some opisthobranch gastropods, and 'Mollusques céphalés conchilifères' included the ectocochleate cephalopods and most of the shell-bearing gastropods. Within this group, 'Coquilles univalves multiloculaires' included *Nautilus*, *Spirula*, ammonites, belemnites, and Foraminifera. Mollusques acéphalés were similarly divided into naked (i.e. the tunicates) and shell-bearing forms, the latter including brachiopods and cirripedes as well as the modern Bivalvia.

In later works Lamarck (1804; 1809) adopted Cuvier's groups brachiopodes, céphalopodes, gastéropodes and ptéropodes.

Later History

Cuvier, Lamarck and other French authors continued to state their classifications in the vernacular, using latinised generic names without formalising the names of higher categories. 'Cephalopoda' as a formal latinised term first appears in the

English translation (*Lectures on comparative anatomy*, 1802, p. 428, folding table v) of Cuvier's *Leçons* of 1800. The *Oxford English Dictionary* gives the year 1802, with the reference 'Medical Journal VIII, 372', which in fact is a review (Anon.) of the English translation (Cuvier, 1802) by William Ross of Cuvier (1800). The formal terms Gasteropoda [sic] and Acephala are used in the English translation. Brachiopoda and Pteropoda were latinised from brachiopodes and ptéropodes by Duméril (1806). A detailed account of the history of the classification of the Gastropoda is given by Cox (1960).

Foraminifera were excluded from the Cephalopoda in the 1802 English translation of Cuvier (1800), but they continued to be included by French authors until Dujardin (1835) examined the soft parts of living Foraminifera and showed that they could not be classed with the Mollusca.

For the English vernacular 'cephalopod' and 'gasteropod' the earliest usage cited by the *Oxford English Dictionary* is 1826 (Kirby & Spence, 1826, p. 235). Parkinson (1811, p. 99) had used the spelling cephalopode and (1811, p. 165) wrote of 'bivalve shells, the dwellings of acephalous molluscae'.

The terms Brachiopoda, Cephalopoda, Gast(e)ropoda and Pteropoda have retained general currency. Acephala, though used by some nineteenth century authors, has not found general acceptance. Cox (1969, p. N3) found that no less than thirteen different names had been used for the bivalve molluscs, and used the Linnaean name Bivalvia (Linnaeus, 1758, p. 645) in accord with other recent works of reference (e.g. Franc, 1960).

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