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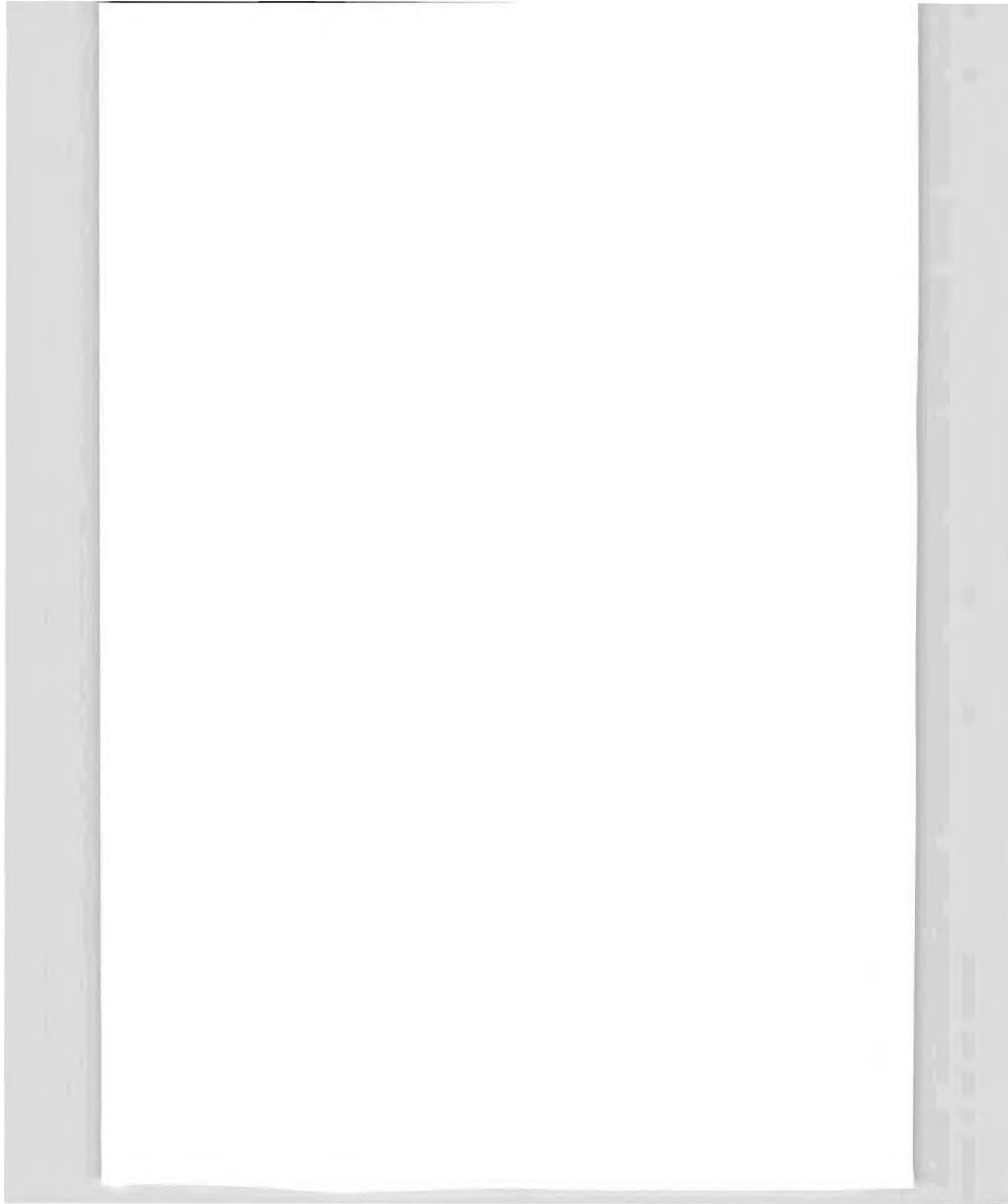
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Torleif Holthe

EVOLUTION, SYSTEMATICS, AND DISTRIBUTION OF
THE POLYCHAETA TERE BELLOMORPHA, WITH A
CATALOGUE OF THE TAXA AND A BIBLIOGRAPHY

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AND A BIBLIOGRAPHY

by

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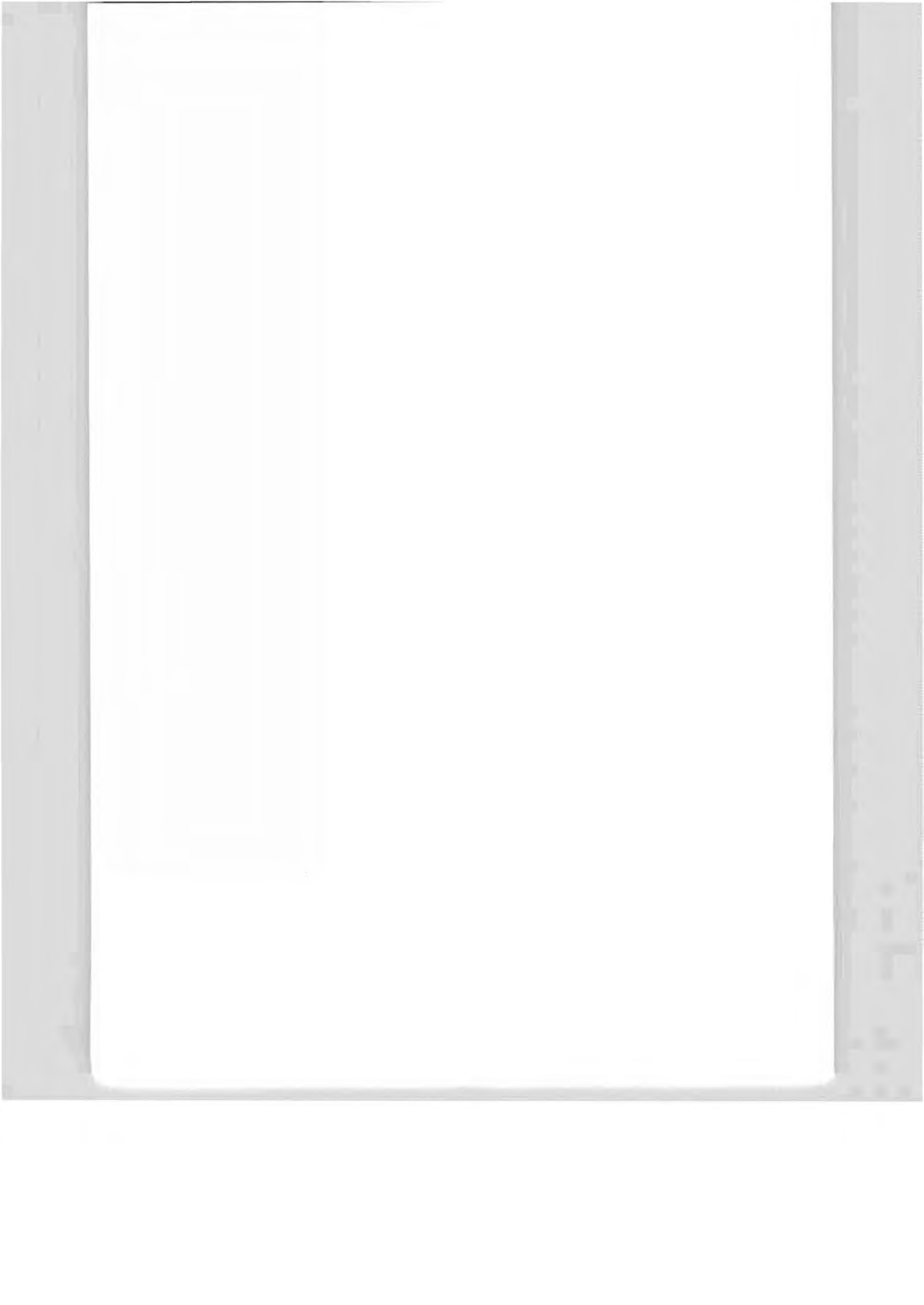
ABSTRACT

Holthe, T. 1986. Evolution, systematics, and distribution of the Polychaeta Terebellomorpha, with a catalogue of the taxa and a bibliography. *Gunneria* 55: 1-236¹.

The evolution of character states in a number of characters, mainly morphological ones, in the Terebellomorpha is discussed. The current use of meristic characters in classifications is discouraged. On the basis of the character states it is attempted to identify monophyletic groups within the order. The consequences to the taxonomy of the order are discussed. The connections of the order with other polychaete groups are discussed. It is concluded that the families Bogueidae and Sabellariidae should not be placed within the Terebellomorpha. One new species is erected (*Auchenoplax rullieri*, based on an existing description). A number of new tribi and one new subfamily are proposed. The phylogeny of the Terebellomorpha is discussed, and it is suggested that the errant sister-group of a group of sedentary polychaete orders including the Terebellomorpha should be sought within the Eunicomorpha. A catalogue of the terebellomorph taxa with a limited number of new names (replacing homonyms) and new combinations is given. Definitions of suprageneric taxa are given, along with references to descriptions of all taxa and listings of the biogeographical regions in which the individual taxa occur. A combined reference list and bibliography of the Terebellomorpha including ca 770 references, covering ecology and physiology as well as systematics and faunistics, is given.

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INTRODUCTION

The Terebellomorpha is an order (considered a suborder by some authors) of sedentary polychaetes comprising the families Pectinariidae, Ampharetidae, Trichobranchidae, and Terebellidae. Fauchald (1977a) included the families Bogueidae and Sabellariidae in an order 'Terebellida' along with the four terebellomorph families. The validity of this inclusion will be discussed below, but I shall start with treating the four families only.

Most works on terebellomorph systematics have been purely or mainly descriptive. A number of authors have, however, discussed the systematics of the order on a more or less evolutionary basis. Outstanding among these works is the monography by Hessle (1917).

The ampharetids were treated by Day (1964), the subfamily Ampharetinae by Chardy & Desbryères (1979), and the pectinariids were treated by Nilsson (1928).

The present work is not intended as a revision of the Terebellomorpha, but rather as a review with comments on the phylogeny and systematics of the group. I fully agree with Fauchald (1977a) that any revision must be based on material and not on descriptions alone. The present work is only to a limited extent based on material, and then on predominantly on Scandinavian and Arctic samples, but it has been my aim to review and discuss a global fauna.

It is not my intention to present a new and complete classification of the Terebellomorpha, but rather to point out some principles that a future taxonomy might be built on, to discuss the information in the character sets available, and to suggest a provisional taxonomy that must be expected to undergo substantial change as revisional work proceeds.

MATERIAL AND METHODS

This paper is based on the author's material described in earlier papers (Holthe 1976, 1977a, 1977b, 1978, 1986a, 1986b), material from the 'Johan Ruud' cruises and the 'Ymer-80' expedition (see Nilsen & Holthe 1985), but it is mainly a discussion based on the

descriptions of terebellomorph polychaetes in the literature. To avoid the problem of comparing the ca 700 valid species, I shall concentrate on discussing on the generic level. The species of some large genera, e.g. *Pista* and *Terebellides* are currently under detailed revision by specialists, and I shall try to avoid making more loosely based suggestions regarding these species. In some cases it will, however, be necessary to bring species or subgeneric groups of species into the discussion.

For obvious reasons I have to accept the descriptive facts of earlier authors, it is beyond the reach of any zoologist to get fresh material of all the world's terebellomorphs, of which many are extremely rare and known only from a few and often damaged specimens. Even revision of the type material cannot be undertaken within limited time when the whole order is concerned, such revision can in practice be carried out only with genera or groups of genera. In some cases the types are the only material that has ever been studied, and in some species the types have been lost.

On the other hand I have tried to make some new terms on the basis of homologous structures; the descriptive nature of most of the literature has resulted in a bewildering number of ad hoc names for the morphological structures of the terebellomorphs.

To make the discussion more legible, I have omitted the authors and priorities when I first mention a taxon, unless this information is necessary for the discussion. Otherwise this information can be found in the catalogue part (v.i.).

RESULTS AND DISCUSSION

The first terebellomorphs were described in the 18th century by Pallas (1766), Linnaeus (1767, 1788), O.F. Müller (1771, 1776), and Fabricius (1780). The number of taxa increased only slowly till the middle of the 19th century, but descriptive work was speeded up considerably in the 1860's. Main contributions in this period were made by Sars (1829, 1835, 1851, 1856, 1863, 1865, 1866, 1870, 1872). Grube (1846, 1850, 1855, 1859, 1860, 1863, 1864, 1866, 1868, 1870, 1871, 1878a, 1878b) and Malmgren (1866, 1867, 1868).

Since 1860 the number of valid terebellomorph species has grown steadily (Fig. 1), at an average rate of ca. 5 spp/year. The

number of valid genera made a great jump in the 1860's, and another during the years 1917-1919, and since 1960 the increase has been nearly linear at a rate of nearly 2 genera/year (Fig 1). When I use the term valid taxa, it is of course based on a subjective judgement, which is necessary to obtain a measure of the increasing knowledge of the group. The objective number of taxa actually described only gives a measure of taxonomic effort.

As can be seen from Fig. 1, there is no clue to when all existing species will be described, or to how many species there are in nature. The number recent species in nature is of course finite, but the fraction known to science depends on the theoretical definition of the species as a category, the number of character sets available, and on the research effort.

For two practical reasons we may still expect a large number of new species to turn up. The old "cosmopolitan" species, like *Terebellides stroemi*, are in a process of being split up, and there are still regions that are poorly investigated, e.g. New Zealand and parts of South America and especially the deep sea.

Not only new species in established genera might be expected. Also in the 1970's and 1980's new and astonishingly isolated forms have been described, especially among the deep sea ampharetids.

The delimitation of the order has traditionally been a matter of universal consensus, but Fauchald (1977a) included also the families Bogueidae and Sabellariidae in an order Terebellida. The position of Bogueidae was discussed by Wolf (1983) and Nilsen & Holthe (1985), and both works concluded with establishing a closer affinity of the Bogueidae to the Maldanidae. A resumé of this problem and a brief discussion of the position of the Sabellariidae are given below.

The families are well defined and can for all practical purposes be kept apart. Small specimens and fragments are not always easily sorted out to the right family, but what is more astonishing is that even competent polychaetologists have described new genera in a wrong family. The genus *Melinella* McIntosh, 1914 is not an ampharetid but a terebellid (a synonym of *Axionice* Malmgren, 1866, fide Holthe 1986a), *Alkmaria* Horst, 1919 is not a terebellid but a valid ampharetid genus (fide Wesenberg-Lund 1934), *Artacamella* Hartman, 1955 is not a terebellid but a valid trichobranchid genus (fide Hutchings 1977 and Holthe 1977c), *Pseudoampharete* Hartmann-Schröder, 1960 is not an ampharetid but a terebellid of the genus *Polycirrus* Grube, 1850 (fide Hartmann-Schröder 1962), and *Amage inhamata* Hoagland 1919 is no terebellomorph at all, but a cirratulid (fide Fauchald 1972a).

Excepting Hesse's (1917) work and scattered comments by other authors, there have been very few attempts to establish a natural taxonomy of the Terebellomorpha. None of the current taxonomies of the group can be accepted on the theoretical basis of modern syste-

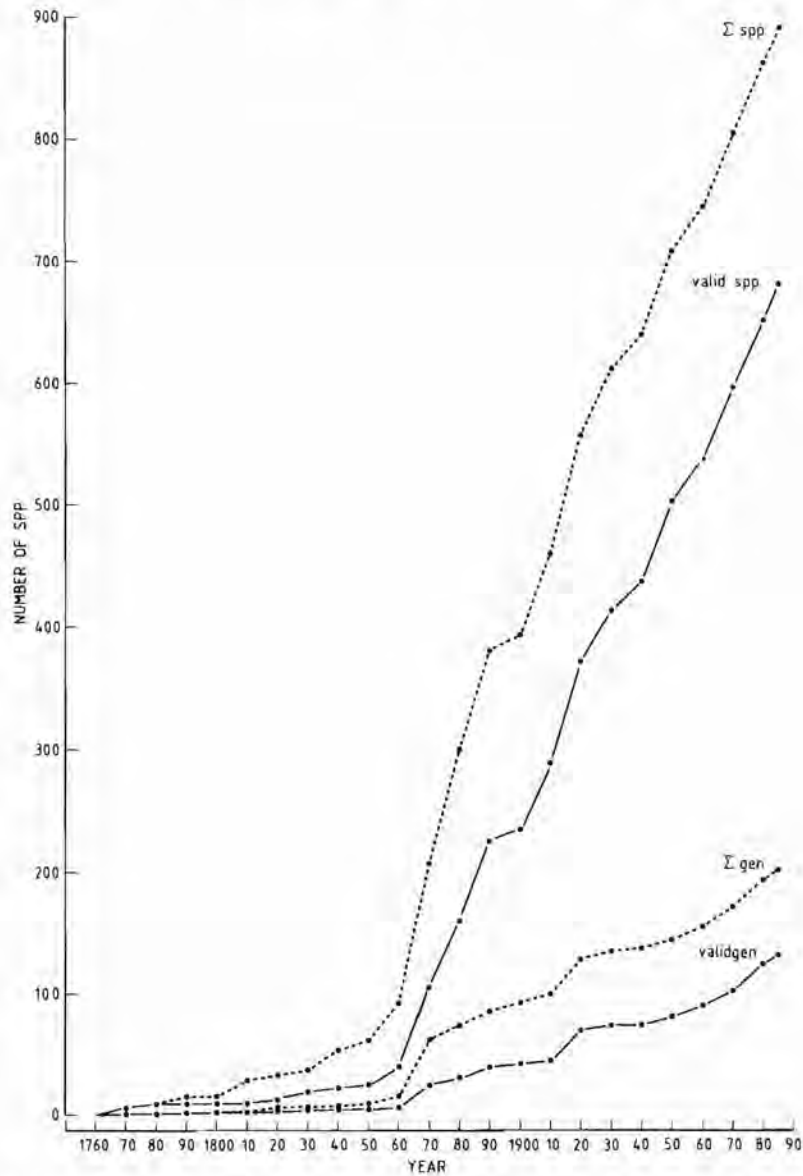


Fig. 1. Cumulative numbers of terebellomorph species and genera per decade from 1760 to 1985. Unbroken lines represent taxa presently considered valid, hatched lines represent total number of taxa described.

matics, whether evolutionary or phylogenetic. Both Mayr (1969) and Hennig (1950, 1966) claim that systematics should mirror nature - respectively as evolution or phylogeny. On the contrary, much of the taxonomic work done on terebellomorphs aims at the definition and recognition of genera and higher taxa for purposes of identification.

This utilitarian aspect is explicitly stressed by Day (1964), and results in the use of largely meristic characters for the definition of taxa. Extreme in this direction is the proposal by Day (1967) that all abbranchiate terebellids should be united in one subfamily - a classification that might be convenient for identification, but clearly disregarding the phylogeny and thus creating a polyphyletic taxon. Likewise Day's (1964) use of meristic characters of the Ampharetidae leads to a classification of characters rather than taxa, and inevitably results in polyphyletic taxa.

In the literature of the terebellomorph polychaetes there has been much discussion as to whether certain character states are of generic or specific importance, but I will reject this discussion as irrelevant to modern natural systematics, be it evolutionary or phylogenetic.

There have, however, been forwarded arguments on theoretical grounds rather than utilitarian, that different evidence should be used to define each taxonomic level (Fauchald 1977a). In my view the purpose of evolutionary and phylogenetic systematics is not in the first hand to define taxa, but to discover monophyletic groups of species and classify accordingly, whether formal categories are used or not. Hence the definition of taxa comes in after the species have been grouped, and must account for exceptions caused by secondary loss or simplification of structures as well as atavisms. As I shall show in the course of discussion, such exceptions are abundant in the Terebellomorpha.

It has been my aim to find a natural classification, ideally to reveal the evolutionary facts (cfr. Mayr 1969) and classify accordingly. Earlier (Holthe 1977c) I have used methods from phylogenetic systematics, and I shall use these methods of character analysis whenever they may be adequate. I will not, however, generally reject paraphyletic taxa, and my taxonomic philosophy must therefore still be labelled as 'evolutionary'.

The understanding of function when discussing the evolution of any set of characters is crucial, and this principle is not unknown to polychaete taxonomists (cfr. Clark 1964, 1969, Mettam 1971, and Knight-Jones 1981), even if most taxonomists have classified according to character state without discussing evolutionary aspects. The

principles of polychaete phylogeny were discussed by Fauchald (1974), but in that paper he is predominantly occupied with the early evolution of the annelids from acoelomate ancestors, and the importance of a change in habitat for the evolution of the different large groups of polychaetes.

A number of characters, presently more or less well investigated, may form the basis of a phylogenetic analysis of the Terebellomorpha. These characters are: The number of segments and their exterior and interior differentiation; the shape of the buccal structures including lips and tentacles; the number, shape and situation of the branchiae; the number and the differentiation of the notopodia; the number and the differentiation of the neuropodia; the presence or absence of lateral lobes; the number and shape of the ventral shields; the types of notochaetae and neurochaetae, the general shape of the body; the differentiation of the digestive tract; the number and differentiation of the nephridia; the pattern of the nervous system; the type of tube; the way of reproduction; and the feeding habits.

As in the case of most invertebrates, many of the characters, and especially the internal ones, are investigated only in a fraction of the species present. The importance of such characters was stressed already by Fauvel (1897b), who demonstrated the anatomical differences between the superficially similar genera *Ampharete* and *Amphicteis*. To ascertain the state of such characters in a large number of species is not only highly labourious, it also calls for collection of fresh material for special preparation, a task impossible to accomplish in a cosmopolitan order with many rare species. Much could be done, however, once one knows what to look for. In the present work I shall rely mainly on the external, morphological characters which are known more or less accurately for all described species. It will be my argument that these structures all follow the laws of natural selection, as their appearances are genetically determined, and as they are functional parts of the polychaete body.

One set of characters has hardly been investigated in the Terebellomorpha. This is the set of biochemical characters that can be studied e.g. by electrophoretic methods. With the few exceptions offered by Terwilliger & Koppenheffer (1973), Garlick & Terwilliger (1974), and Weber et al. (1977), such work has not been undertaken, and it has not yet been used for the purpose of classification. I don't say that it would not be interesting to follow this line of investigation, but I strongly oppose the idea that such characters give better information to base a phylogenetic analysis upon than do morphological and anatomical charac-

ters. The information on the genome itself that can surely be gained by biochemical methods, is most interesting for systematic work on the species level. The very genome is subject of evolution, and more of its information concerns the regulation of processes and hence morphology, anatomy and behaviour than the accurate nature of the chemicals synthesized.

Biochemical information on the species would be very welcome, but to me a term like 'biochemical systematics' is a nonsensical one; we classify organisms, not sets of characters. Any character with different states within a taxon can be shown to have its phylogeny; this phylogeny cannot, however, be expected to be congruent with the phylogeny of the taxon. This statement follows from the fact that parallelism and convergence do occur in nature, and hence any sound phylogeny has to be constructed in a polythetic way.

Thus I shall proceed discussing the mainly morphological characters that are available, and try to show how the taxa of the order may have evolved. That this theory of the order's evolution can be falsified by the analysis of new sets of characters is not disturbing, it is only the sound and natural way of science.

For each character the primitive condition within the Terebellomorpha, i.e. the character state to be compared with that in other polychaete groups, will be sought, and possible evolutionary pathways leading to the apomorphic states will be discussed.

As in other organisms, the intraspecific variation of polychaetes is considerable, but it is poorly documented in the literature. Older descriptions very seldom account for the intraspecific variation, and newer descriptions are often based on a very sparse type-material. Exceptions to this rule, like the work of Zottoli (1983) are far too few.

Even if the typological species concept theoretically has been long abandoned, its ghost still lingers in the taxonomy of a group where descriptions based on single specimens are far too common. Under the modern biological species concept intraspecific variation in any character may be greater than the interspecific. This is not only a theoretical problem, it occurs more often in nature than many taxonomists would like to admit. Therefore, in studying a taxonomic group with a limited set of characters available and a very fragmentary information on the intraspecific variation, one should be very careful making statements on the specific level.

In my opinion it is necessary to undertake a polythetic analysis of

the organisms under study. I quite agree with Fauchald (1974) when he writes that previously suggested phylogenetic schemes of polychaetes have depended on selection of one organ-system as being the most conservative or the most expressive of relations between the different groups; and that these schemes show a great deal of internal inconsistencies.

Consider a situation with two independent characters, both appearing in two different states within a monophyletic group. The plesiomorphous states can be labelled a' and b', and the apomorphous states a'' and b''. When all four possible combinations of these occur, viz. a'b', a'b'', a''b', and a''b''; it is mathematically impossible to construct a cladogram, symmetric or asymmetric, under the assumption that both a' - a'' and b' - b'' represent unique evolutionary events (fig. 2). Hence at least one must represent convergence. One may hope to reveal which one is convergent by bringing into the discussion more character sets. As I shall show later, when discussing the phylogeny of actual taxa, new character sets will not always solve the problem, but may demonstrate still new and unresolved convergences!

Under an evolutionary model the polythetic analysis must result in a topologically possible cladogram. A polythetic analysis based on grouping simply by similarity, as advocated by certain numerical taxonomists, will result in a classification that would best fit a creationistic model.

An inevitable effect of a polythetic analysis of a large and old group like the Terebellomorpha is that the resulting diagnoses of suprageneric taxa will contain numerous exceptions. Consider for instance the two terebellomorph genera *Gnathampharete* and *Hauchiella*, which hardly share one single morphological character. *Gnathampharete* has a well-developed prostomium, branchiae, jaws, chaetae, and a tube; *Hauchiella* has none of these features. On the other hand *Hauchiella* has tentacles, which *Gnathampharete* is lacking. Still both genera are obviously closely related to other, more 'normal' genera, and both can be connected with monophyletic subfamilies.

The consequence of the character states found in *Gnathampharete* and *Hauchiella*, is that the diagnosis of the order Terebellomorpha must account for exceptions in all these characters, and there is hardly one character left by which the order could be 'defined' (in the sense of Fauchald 1977a) monothetically. The alternative is to let the order be 'defined' in another sense, viz. by the taxa contained (all members of a monophyletic group), and diagnose it accordingly. To me the latter sense of 'define' is undoubtedly the more heuristic in taxonomy.

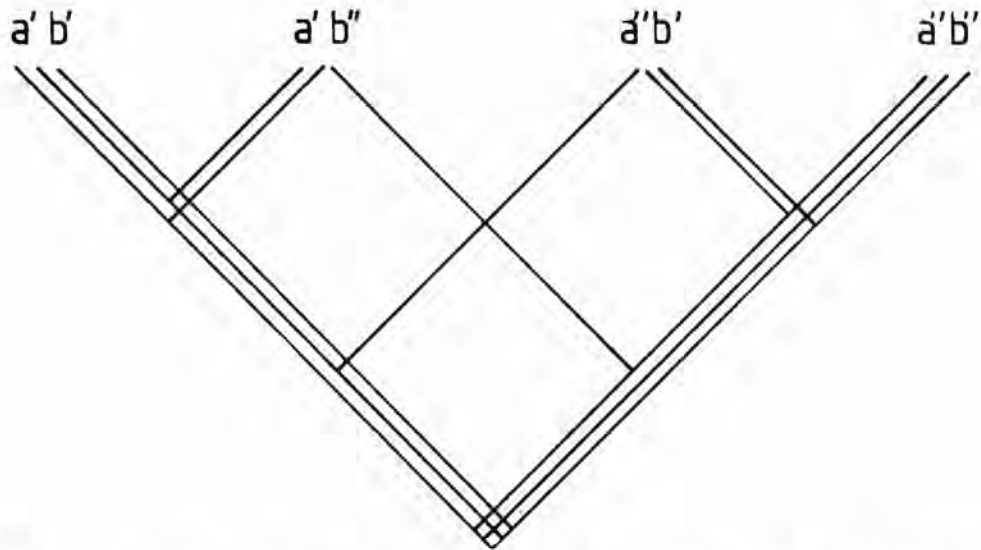


Fig. 2. A case with four related taxa exhibiting combinations of the character states a', a'', b', and b'', showing three equally parsimonious cladograms.

Below I shall start discussing the character sets of the terebellomorpha, and then turn to the taxonomic consequences of this discussion. At the end of this chapter new or emended diagnoses of the suprageneric taxa are given.

CHARACTER SETS

Body and segment shape

The body shape of the terebellomorphs varies from that of the long, tapering terebellids like *Thelepus* to that of the short, stocky pectinariids, the number of segments varies from more than 300 in *Lanice conchilega* to a very limited number in pectinariids and many ampharetids. The length/width ratio of the individual segments varies from ca 0.10 in the thorax of *Biremis* to ca 7 in the abdomen of *Uschakovius*. The abdomen may be tapering, as in most groups, or developed into a specialized, flattened scapha as in the Pectinariidae.

Also in some ampharetids there is a non-tapering abdomen, as

in *Grubianella antarctica*, which has a flattened and enlarged posterior part of the abdomen, and in *Samytha speculatrix*, where the posterior part of the abdomen is set at an angle to the preceding segments, but the latter has been interpreted by Hartman (1966c) to be caused by injury and subsequent regeneration. Tapering abdomens are usually straight, but may be coiled, as in *Amphitritides*, *Spiroverma*, and *Streblosoma*.

The evolution of coiling in the Sabellida was discussed by Knight-Jones (1981). In these animals the coiled tube and body are accompanied by morphological adaptations. According to Knight-Jones, the life in coiled tubes must have been difficult for the archaic, just coiled forms. The coiled terebellids seem to be just in such an early stage, and to have evolved independently of each other, and of course of the coiled spirorbids.

It is natural to assume that the primitive condition in the order is a long body with a cylindrical anterior part and a tapering abdomen, with many equal segments that are neither very long nor very short; i.e. a typically metameric annelid body. From this type can be derived all specialized shapes by loss of segments and widening or narrowing of the segments.

Long, narrow segments are not common in the Terebellomorpha; it is found in some ampharetids like *Uschakovius* and *Eclysippe*, and to some extent in the terebellid *Rhinothelepus*. This segment shape is regularly found in other groups of sedentary polychaetes, especially in the Maldanidae, but also in the Oweniidae and the Bogueidae. In the Terebellomorpha it must be considered an apomorphic state.

Neither are very short and wide segments common within the Terebellomorpha, and should hardly be expected in tubicolous annelids. The Pectinariidae have relatively short and wide segments, but they also build a very short, conical tube; *Reteterebella* builds its tube inside crevices in coralline reefs; *Alvinella* is highly autapomorphic and lives in the very special habitat of the hydrothermal vents; and the genera *Lysilla* and *Biremis* of the Polycirrinae are not tubicolous.

A shortening of the body by the loss of posterior abdominal segments seems natural in polychaetes with a highly differentiate intestine that is often longer than the body. This trend is especially present in the Ampharetinae, and even more so in the Pectinariidae.

Homologies of the segments

What does homology mean in a metameric body like that of annelids? Whether we can establish homologies of segments throughout the body depends on an understanding of the genetic code and the epigenetic processes governing the formation of segments, an understanding we not yet have. Whereas the homologies of segmental structures, e.g. uncini and nephridia, are readily established, it is only possible to establish homologies between certain segments, i.e. the very anterior segments and the pygidium, throughout the order, and between a larger number of segments in limited groups, such as genera or perhaps even subfamilies.

The question of homology in the Terebellomorpha was discussed already by Fauvel (1896a), and later authors all seem to have had some idea of this concept, even if not explicitly expressed. I am not certain, however, that the current views on homology in annelids are in accordance with the rapidly accumulating knowledge of modern genetics.

We cannot be certain about how the evolutionary reduction and transformation of segments work. In ontogenesis the anterior segments come first, and successive segments are formed in the posterior part of the body, just in front of the pygidium. It is natural to assume that the resulting number of segments in the adult worm is given by genetic control of the epigenetic process of segment formation. If we use the analogy of a computer program, then there may not be a sub-program for each segment, but a loop of standard instructions repeated N times. In annelids the number N must be genetically controlled and subject to evolution. Hence one can consider segments with the same number in two annelids homologous, but it is a very weak homology compared with e.g. that of the limbs of vertebrates, or that of the segmental structures of the annelids themselves. The evolutionary effects of this model is further discussed under the heading 'notopodia and notochaetae' (v.i.).

Such homologies should be expected to have a limited reach. It does hardly make sense to compare the same segments in polychaetes and hirudineans, but it might be useful to consider homologous segments in congeneric species and in neighbouring genera.

The obviously closely related genera *Alvinella* and *Paralvinella* have strongly modified and similar notochaeta in segments V and VIII respectively. These modified chaetae probably represent one evolutionary event, suggesting that the effectuation of special genetic

instructions can be moved at least a few segments. In this case the most likely evolutionary direction is a forward shift, as *Alvinella* combines more autapomorphies in other characters than *Paralvinella* does.

These 'jumping' chaetae seem to represent homeosis, the molecular mechanisms of which are presently becoming better understood (cfr. Ouweneel 1976, Lewis 1978, Fjose, McGinnis & Gehring 1985). As could be expected, most of the experiments on homeosis have been carried out on *Drosophila*.

According to Fjose et al (1985) the 'proper subdivision of the (*Drosophila*) embryo into segments requires the correct expression of at least 15 genetic loci..'. A mapping of any polychaete genome comparable to that of *Drosophila* is far off in the future, but one can expect similar genetic mechanisms to be at work also in polychaetes. It thus seems that specializations of segmental organs can 'jump' from one segment to another by homeosis. In *Drosophila* such mutations of the genes controlling segmentation are lethal (Fjose et al. 1985). Whereas the segment identity in insects is very strong, this is not the case in most polychaetes. Therefore homeosis may not necessarily be lethal in polychaetes, but may on the contrary be an important evolutionary mechanism.

I have elsewhere (Holthe 1986) rejected the lumping of *Anobothrus* and *Sosane* by Hartmann-Schröder (1971) on the grounds that the similar character state in the two genera appears in different segments and therefore might not represent a homology. I now have to face the theoretical problem of whether such homologies can be established, and the practical problem of recognizing possible homologous structures in the taxa. After all, homology is not a formal concept that can be defined to fit the need of character analysis in a given taxon. Trying to define it in this way would inevitably result in an artificial system.

Returning to the computer analogy, there is hardly an instruction in the genome determining the features of a specific segment, but several programs running simultaneously, one controlling the number of segments formed, and others controlling the formation of segmental structures in a number of segments.

These considerations and the consequent devaluation of meristic characters in classification have led to the lumping of several ampharetid genera under *Melinnampharete* (see 'dorsal ridges' (p. 43) and catalogue part). These genera were most recently discussed - and continued - by Desbruyères (1978b).

At the species level in the Terebellomorpha the number of times a segmental structure is repeated seems to be reasonably constant for low numbers (e. g. notopodia in less than 25 segments), but less so for larger numbers (e. g. notopodia in more than 25 segments). In my opinion this fits well with the model of several simultaneous programs which must be expected to give less constant result the longer they are running. My conclusion is thus that the homology of segments should be treated with great care, and that it might be brought into discussion for closely related species only.

Reduction and transformation of the segments

In the Terebellomorpha the character state of having a small number of segments often coincides with apomorphous states in other characters. The ancestral 'archaeoterebellomorph' must have had a large number of equal segments, which is the characteristic set-up of primitive polychaetes. Therefore I shall consider a body with few segments apomorphous within the order, and assume that evolution has proceeded mainly by segment reduction.

Under an evolutionary perspective there is an obvious energetic gain by differentiation and reduction of metameric structures.

It is impossible to exclude that an increase in number of segments may have taken place in some groups, but that is hardly the normal way. Likewise I shall claim that the plesiomorphous states of notopodia and neuropodia in the Terebellomorpha are notopodia and neuropodia with chaetae from segment II and throughout the body. I view the loss of segmental features in a number of segments, as well as the reduction of metameres as adaptations to a specialized way of life.

The phylogenetic reduction of number of segments probably takes place by the loss (i.e. ontogenetically the non-formation) of the small posterior segments. Usually these segments are very simple and have only vestigial notopodia and neuropodia, if any at all. The exception from this normal process is found in the family Pectinariidae, where the posterior segments form a highly specialized structure, the scapha. As should be expected, the number of uncinigerous segments in front of the scapha is highly constant in this family, ranging from 12 to 14, suggesting that the number

of segments is virtually constant, and that the corresponding scaphal segments can be considered homologous in all forms.

Functionally, the reduction in number of segments can be explained by the differentiation and anterior looping of the digestive tract (v.i). With a differentiate and anteriorly long gut, there is no need for a large number of posterior segments. In most ampharetidids there is a limit to the shortening of the posterior part, as these animals have long tubes and defecate by bending their posterior parts forward and out of the anterior opening of the tube. The pectinariids, on the other hand, have short conical tubes, and defecate through the hind opening. Most terebellids have long posterior parts with many segments and a rather slim body, the exceptions are mainly non-tubicolous forms. At least some of the terebellids (e. g. *Thelepus*) have the habit of turning inside their narrow, cylindrical tube, something that a pectinariid would never do, and this may be a part of the explanation to why the former have retained a slim body with many segments.

In this discussion of segmental reduction I have deliberately not used the terms 'thorax' and 'abdomen'. These terms are differently defined in various sedentary polychaete families, and the definitions usually refer to the presence or absence of notopodia. Such definitions can be very useful in descriptive work, and in such contexts I have not refrained from using them (Nilsen & Holthe 1985, Holthe 1986a, b), but they cannot form the basis of a phylogenetic discussion. Moreover, if the thorax and abdomen of terebellomorphs are defined generally by the presence or absence of notopodia with chaetae, then where are the thoraces of *Hauchiella* and *Biremis*, or the abdomens of *Thelepus*, *Terebella* and *Baffinia*? A better definition would be one referring to the presence of anterior (thoracic) syncoelomic segments, but this feature has simply not been investigated in most described taxa.

Phylogenetically the number of 'thoracic' segments, taken as segments with notochaetae, does change. When the number of 'thoracic' segments is reduced, it has probably happened by the loss of notopodia, thus the last 'thoracic' segment of the ancestral species may be homologous with the first 'abdominal' segment of the daughter species. Below I shall discuss why notopodia and neuropodia disappear from the segments, here I shall conclude that only the posterior segments become lost, 'thoracic' segments are not lost when their number decreases, they just turn 'abdominal'.

Also at the front end of the terebellomorphs evolution is at work. Here I have found no evidence that segments become lost; they do, however, tend to become specialized and telescoped into one

another to a degree that they can be told apart only by sectioning. Anterior thoracic segment may lose their notopodia and become achaetous. An example of this is provided by *Anobothrus gracilis*, in which the first parapodium behind the well-developed paleae is so reduced that it has often been overlooked. Like thoracic segments branchial segment do not become lost, they just lose their branchiae, or the branchiae are superficially displaced to other segments.

The cephalization process of the ampharetids was discussed by Day (1964).

The notopodia and notochaetae

The importance of the chaetae in polychaete phylogeny was stressed by Strel'tsov (1972), and I do agree that the hard chitinous structures of notochaetae, as well as neurochaetae, are very well suited as a basis for phylogenetic interpretation, nota bene when the functional aspect of their evolution is discussed. The evolution of polychaete chaetae was discussed by Fauchald (1974), who concluded that they were originally developed as adult structures.

The notochaetae have been a persistent feature of the terebellomorphs. Some terebellomorph taxa that are clearly not closely related, have notochatae in most segments; usually notochaetae are restricted to the anterior part of the body, the 'thorax', and there are only two genera of the Polycirrinae - *Hauchiella* and *Biremis* - in which the notochaetae are completely lacking.

There are several types of terebellomorph notochaetae; they are all basically capillary chaetae, but may be simple, brimmed, smooth or serrate, straight or bent. In some species there is only one type of notochaetae, in others there are more than one type.

It is more difficult to find the original, primitive type of terebellomorph notochaetae than it is in the case of the uncini (v. i.). It is, however, probable that the first terebellomorphs had brimmed, smooth notochaetae, and that the specialized types of notochaetae can be derived from these. The function of the notochaetae in adult tubicolous annelids is not one of propulsion, but one of irrigation. In the Terebellomorpha the notochatae generally serve this purpose, but in the families Pectinariidae and Ampharetidae there occur transformed anterior notochaetae, paleae, that may have an opercular function, and they may

serve also for the purpose of digging.

It seems logical to assume that the primitive set-up of notopodia in the Terebellomorpha is one of simple, equal notopodia from segment II and throughout the body. These notopodia may all have had one type of primitive notochaetae.

In some forms the notopodia are enlarged, and may even develop new structures, as illustrated by *Streblosoma*, some Polycirrinae, and especially the Alvinellidae. In other forms the notopodia are reduced, and the notochaetae appear to emerge from the body wall, as in the Pectinariidae.

The notopodia are generally not found throughout the body, exceptions to this rule are shown by genera as far apart as *Alvinella*, *Terebella* and *Thelepus*, and a few genera related to one of these. Considering the evolutionary trend towards a short and narrow abdominal part, this must be seen as a natural consequence. The notopodia of such narrow abdomens must be small, and once redundant in their functional capacity of irrigation, they tend to be lost. Irrigation is thus restricted to the broad thorax.

In some cases the notochaetae are lost before the notopodia, which is demonstrated by the presence of rudimentary notopodia in many ampharetids. The loss of notopodia has gone furthest in the non-tubicolous genera of the Polycirrinae, such as *Biremis*, *Lysilla*, and *Hauchiella*, where there is no need for irrigation, and movement through the sediment is performed by peristalsis of the body. This development is interesting, as it shows how animals can return to the habits of their far ancestors by a long route. The earliest, unsegmented protostome coelomates were probably digging into the sediment by peristalsis of the coelom, and when some modern polychaetes dig in the same way it depends on a secondary loss of internal segmentation that was brought about in another course of evolution, the prolongation of the intestine in tubicolus terebellomorphs.

The reduction of notopodia should be expected to proceed towards an evolutionary climax determined by the energetic optimum. The selection pressure and hence the evolutionary rate will be retarded as this evolution proceeds, and the optimal number of notopodia will not be the same in all species, as it must depend on the length of the cylindrical part of the body and most probably on other factors. Hence the climax as well as stages before this must be expected to be more or less normally distributed in a large, monophyletic group.

In the large and most probably monophyletic subfamily Amphitritinae this expectation is not fulfilled. It has been known since the

1860's that an impropportionate number of species in this group have 17 segments bearing notopodia (table 2 p. ; fig. 3). With the exception of the genera *Laphania* and *Neoleprea* these 17 pairs of notopodia are present on segments IV-XX. Strangely enough, nobody has discussed the evolutionary implications of this distribution, but Day (1967), after stating that 17 is the typical number in the Terebellidae, mentions that "it is of interest to note that many genera in the Ampharetidae also have 17 bundles of notosetae".

As can be seen from table 2 (p. 70), the number 17 is found in combination with higher and lower numbers in several genera, also genera that otherwise are far apart. The intraspecific variation is considerable for numbers of notopodial segments >19, and lower for numbers <19.

This distribution of notopodial segments can be explained by two different evolutionary models. One is that the number 17 represents symplesiomorphy, and that the higher and lower numbers have evolved independently from this in several genera. In view of the considerations on the general trends in the Terebellomorpha (v.s.) I find this model very unlikely. Even if this model was accepted we would have to explain the conspicuous genetic stability at the 17 notopodial segment stage.

The other model is based on the number 17 representing synapomorphy, which is in good accordance with the general considerations. This synapomorphy cannot, however, be the result of an unique evolutionary event. Any attempt to analyze the character sets listed in table 2 polythetically will result in the conclusion that the number 17 is reached independently by several evolutionary lines. Even if the reduction towards 17 may be an unique event in one large group of genera (*Pista*, *Betapista*, *Axionice*, *Eupistella*, *Opisthpista*, *Paraxionice*, *Scionella*, and *Scionides*), there remain in my opinion as much as 10-12 different independent lines. A comparable number of lines have evolved past the 17 stage.

That a normal distribution of the number of notopodial segment could be expected, is based on the view that each species represents an experiment. That all these lines should be in phase after millions of years of independent evolution is highly improbable.

Fig. 3 shows the actual distribution of the recent species in relation to the number of notopodial segments. If one views the number of species in each class as a standing stock, measured at one moment (present) of an evolutionary sequence, evolutionary rates can be

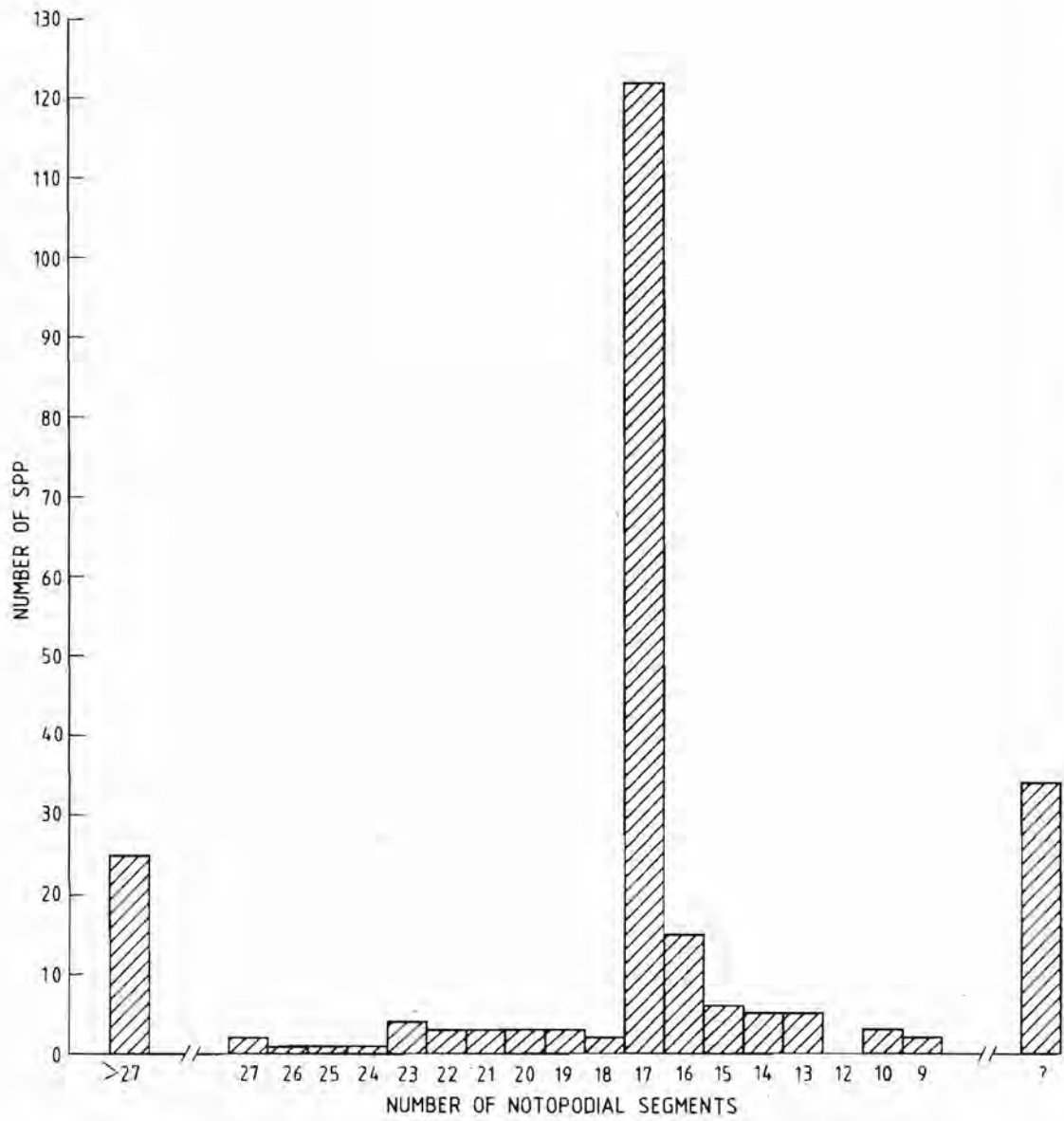


Fig. 3. Distribution of the number of notopodial segments in the subfamily Amphitritinae.

suggested that will give the actual and the expected distributions. The expected rate will be retarded increasingly but slowly in the vicinity of the optimum, whereas the actual rate is abruptly retarded at the number 17.

In the Amphitritinae the number of notopodial segments can be correlated with one other external character, viz. the presence of double rows of uncini in the neuropodia. Fig. 4 shows how the last segment with notopodia coincides with the last segment with double rows in Scandinavian species. (I have chosen the Scandinavian species as a sample because I have revised this material, and I have no reason to believe that this sample should not be representative. Data from Holthe 1986a).

Clearly, the last segment with notopodia tend to be the same as the last segment with double rows, and the latter is slightly more stable at segment XX than the former. The species with notopodia throughout or nearly throughout abdomen fall outside the graph, but usually they have 20-30 posterior notopodial segments with single rows of uncini in the neuropodia.

There is one other character I should like to bring into discussion, that is the position of the first abdominal septum, which delimits the thoracic syncoelom. The position of this septum would give a far better definition of thorax and abdomen than the external characters. For the moment it is impossible to check whether this first abdominal septum appears in segment XX in most species. This septum has the obvious external effect of setting the border between the broad thorax containing the coiled part of the intestine, and the narrower abdomen where the intestine passes straight through the segments. Thus notopodia on this segment will functionally be different from those behind it.

It is interesting to note that if the number 17 cannot be explained by natural selection, there may be another evolutionary explanation. Evolution is a product of natural selection and genetic mechanisms (recombination and mutation). Returning to the computer analogy the number of loops in a subprogram can be controlled by testing the number of the products already formed. A computer cannot count physical products directly, there must be either an input of data, or a counter within the program that is increased by one for each turn of the loop.

Similarly, the genome cannot count the number of notopodia formed directly; there must be a counting mechanism, and this must be of a biochemical nature. This counter may change for each turn of the loop, and at a species specific number reach a stage where it

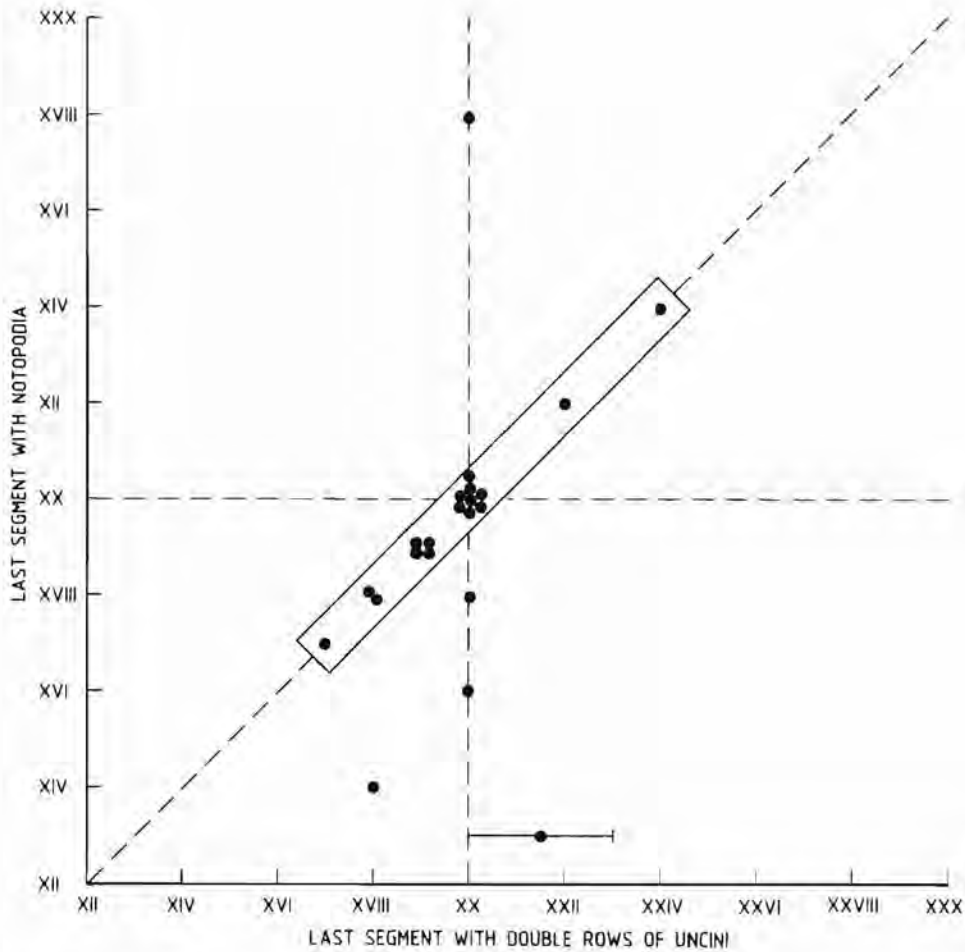


Fig. 4. Last segment with notopodia plotted against last segment with double rows of uncini in the Scandinavian Aemphitritinae. (Data from Holthe 1986.)

switches off the epigenetic process. I admit that this model is speculative, and I shall not proceed on this line of thought, as I have no empiric information with which it can be tested. But the point is that the stability of a meristic character is not necessarily a product of natural selection, but may as well depend on some intrinsic biochemical property of the epigenetic process.

If the loss of notopodia and notochaetae posteriorly can be explained by the restriction of their function to the anterior part of the body, the disappearance of the same structures from a few anterior segments can be explained by the specialization of the head region.

Enlarged, forward-pointing notochaetae of the first chaetous segment, paleae, occur in all pectinariids and in some ampharetids of the subfamily Ampharetinae. The paleae may serve as tools for digging, and in some forms (especially in the Pectinariidae) they may also serve as an operculum at the front end of the tube. Development of the paleae must have started with normal notochaetae being enlarged and then gradually tilted to serve better as an operculum; it cannot have started with small, unfunctional paleae, as this would mean directed evolution (teleology). In several ampharetid genera the paleae are secondarily reduced, they are smaller than the normal notochaetae and hardly functional, but are still pointing forward.

The dorsal hooks present in some genera of the Melinninae (e.g. *Melinna*) are most probably specialized and displaced acicular chaetae. In *Melinnopsis arctica*, which lacks dorsal hooks, one acicular chaeta on each side of segment IV is larger and stouter than the

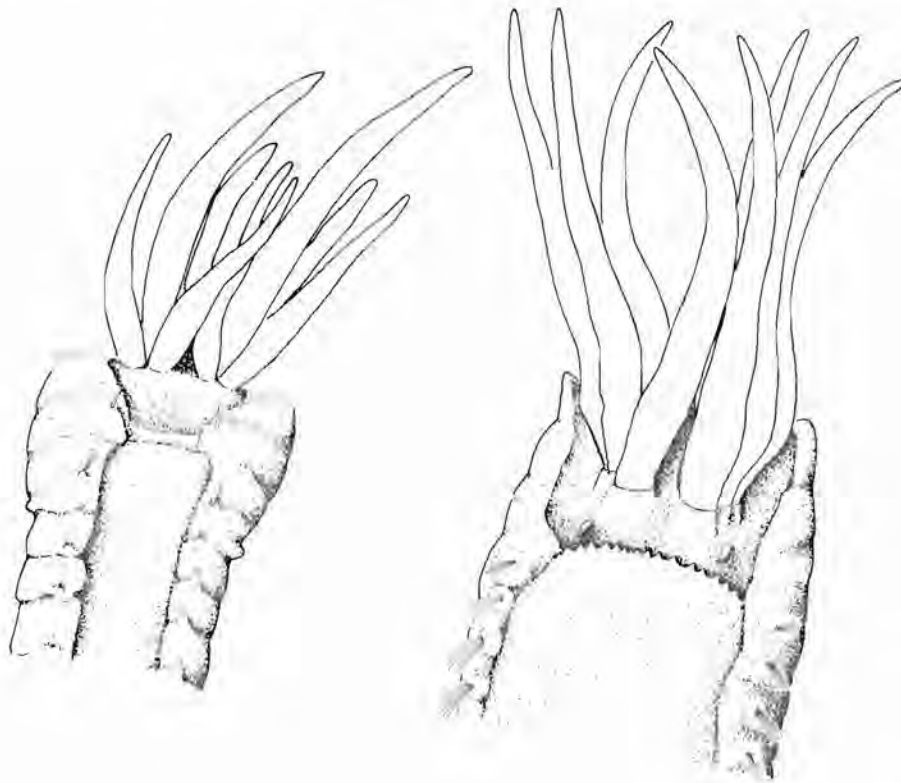


Fig. 5. Dorsal views of anterior parts of *Melinna cristata* (right) and *Melinnopsis arctica* (left), showing dorsal hooks of the former and the stout acicular bristles of the latter.

others (Fig. 5). The stout, straight chaetae in question are the ones of the segment that are closest to the dorsum, and they may well represent an early stage in the development of dorsal hooks. Usually the acicular chaetae of segment IV have all been interpreted as neurochaetae (e.g. by Holthe 1986a), and it might seem a paradox that the dorsal hooks could originate from ventral chaetae!

Specialized notochaetae in the anterior segments are present in the Alvinellidae.

In the Ampharetidae an elevation of certain notopodia in the posterior part of the thorax is not uncommon. These elevated notopodia may have specialized chaetae. The phenomenon is seen in genera that cannot readily be considered closely related, like *Anobothrus*, *Anobothrella*, *Sosane*, *Sosanides*, *Sosanopsis*, *Mugga*, and *Muggoides*, (and to a lesser degree in *Glyphanostomum*). The notochaetae of these elevated notopodia are specialized in rather different ways in the genera mentioned. In a few species, like *Ampharete vega*, *Amphicteis sargassoensis*, *A. vestis*, *Jugamphicteis sibogae*, *J. paleata*, and *Ymerana pteropoda*, there are dorsal notopodial structures without chaetae located to one or more of the first abdominal segments, and forming a flattened fan not unlike those known from the Chaetopteridae. The elevated notopodia, as well as the dorsal fans, must improve the ability to create a respiratory current over the dorsal branchiae when the animal is withdrawn in its tube. *Amphicteis* and *Jugamphicteis* are probably closely related and in these genera the evolution of fans may have taken place once. On the other hand the fans of *Ampharete* and *Ymerana* most likely represent convergent evolutions.

The neuropodia and neurochaetae

The neurochaetae of Terebellomorphs, as well as those of other sedentary polychaetes, have for many decades provided hard structures for the purpose of identification. Especially the uncini, which appear in several groups, show rather complicated and specific shapes that can serve as 'signatures' of the taxa, at least at the generic level. This property of the uncini is stressed by Hartman (1941).

To a far lesser extent the uncini have been used for the purpose of classification, and there are only a few attempts of tracking the evolutionary pathways of uncinal shape and function.

This lack of interest in evolutionary interpretation is mirrored by the lack of a general nomenclature of the parts of the uncini. Usually authors have used more or less precisely defined traditional terms or purely ad hoc definitions of the uncinal parts, suitable for descriptive purposes, but bewildering when one attempts to explain the phylogeny of a family, and even more so when a comparison of families is attempted.

Like other functional parts of the polychaete body the uncini are subject to parallel and convergent evolution. It will therefore not suffice to describe their overall shape and classify the animals accordingly (cf. the Bogueidae problem discussed below). Often it is, however, possible to trace the evolutionary pathways of the uncini once homologies are established, as in the case of the Oweniidae (Nilsen & Holthe 1985). It is also important to consider function and selective value, cf. Knight-Jones & Fordy (1979) and Knight-Jones (1981) on spirorbids and sabellids respectively.

Primitively the neurochaetae of polychaetes were - and still are in most errant polychaetes - a part of the locomotory system (Mettam 1971). In tubicolous polychaetes the function of the neurochaetae - usually in the form of uncini - is one of anchoring the animal within the tube. The homologies of polychaete chaetae were discussed by Blake & Woodwick (1981) and Nilsen & Holthe (1985).

Scanning electron microscopy (SEM) is very useful for taxonomic research (Heywood 1971), and has during the last couple of decades been increasingly used in systematics. SEM has indeed become an important tool in modern polychaete systematics (used among others by Thomassin & Picard 1972, Ben-Eliahu 1975, Desbruyères 1978b, Knight-Jones & Fordy 1979, Blake & Woodwick 1981, Knight-Jones 1981, Wu 1983, Nilsen & Holthe 1985, Desbruyères & Laubier 1985), and the main structures for SEM have been the chaetae. Till now only a small fraction of the polychaete taxa has been investigated by means of SEM, but it is reasonable to believe that it will become a standard method in future taxonomic works.

One form of uncinus, the one with a long, straight manubrium, a capitium (term formed by Nilsen & Holthe (1985), from the French 'capuchon' as used by Thomassin & Picard (1972)) and a rostrum (Fig 6) occurs in a number of sedentary families (i.e. Spionidae, Capitellidae, Oweniidae, Maldanidae, Arenicolidae, Terebellidae, Trichobranchidae, and Sabellidae). The last common ancestor of these polychaetes must have lived in the palaeozoic seas, a fact that reveals the conservative nature of the uncinal structures.

I set out with the program of explaining the character states in functional and evolutionary terms. It is, however, not surprising that some structures escape the attempts of functional interpretation. Whereas the evolution of capitium and rostrum can be understood as they have the obvious function of anchoring the uncinus in the inner lining of the tube, the function and evolution of the subrostral process is more difficult to explain.

If the subrostral process really is homologous with the base of sheat or beard in capitellids and maldanids respectively, then its original status in the terebellomorphs is that of a rudiment. Rudiments may be persistent, but the only evolution they can undergo without a function is that of reduction. The subrostral process is reduced in many terebellids, but in others it has undergone marked development.

In the Thelepodinae the process is large and rounded, and typically shifted towards the lower edge of the subrostrum. (Lower and upper here refer to the conventional way of depicting uncini, readily associated with the profile of a bird's head, that is used here as in most works on sedentary polychaetes. Among major works, only that of Caullery (1944) shows the uncini "upside-down". He was of course in his full right to do so, logically there is no more "up" and "down" in an uncinus than on the globe, it is purely conventional). This rounded subrostral process of the Thelepodinae suggests a function related to muscular attachment and the weight-arm properties of the short and broad manubrium.

But how did the subrostral appendix found on the subrostral process of certain Amphitritinae (e. g. *Amphitrite* and *Pista*) develop? Is it homologous with the sheat of Capitellid uncini, or is it a completely new structure? And what is its function?

It is by no means strange that these functional parts also in many cases have undergone profound changes in shape. There has been plenty of time for evolution to work on the polychaete uncini. The Serpulimorpha is generally considered one of the most advanced groups of sedentary polychaetes, and one of its families, the Spirorbidae, was abundant in the Cretaceous (Ware 1975), and may date back to the Ordovician (Ruedemann 1934). These datings suggest a time scale for the evolution of the sedentary polychaete groups discussed here at least as great as that of the evolution from fish to mammal.

In the Spionidae there are uncinal forms that may be plesiomorphous to the typical long-shafted one with a capitium and a rostrum. For the moment I shall not discuss how the latter arose, and I am

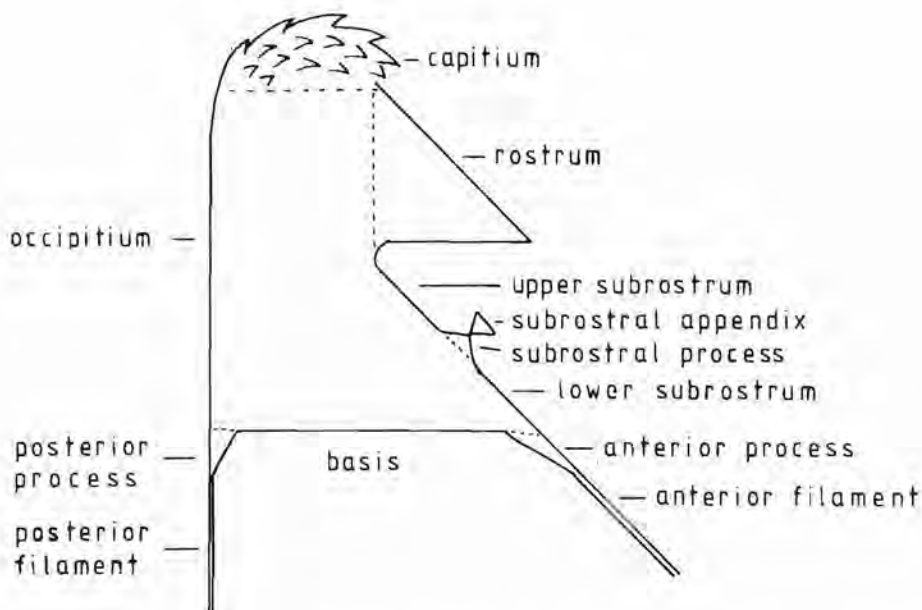


Fig. 6. Parts of the typical terebellomorph avicular uncinus with terminology.

not implying that the Spionidae as a family is ancestral to the other families with such uncini. Henceforward I shall call this type of uncinus manubriavicular. There are basically two kinds of manubrioavicular uncini, naked and sheathed ones (Fig 7). Among the errant polychaetes only the Eunicomorpha contains species with neurochaetae reminiscent of the manubriavicular uncini.

In my opinion the sheathed manubriavicular uncinus can be viewed as the original form from which most of the uncini in several sedentary families can be derived. The types of uncini can be defined as follows:

Manubriavicular: A long, more or less straight manubrium crowned with a toothed or smooth capitium behind the rostrum; a thin sheath arising from the manubrium and reaching above the capitium, or a subrostral beard may be present. (Fig 7a).

Sinuavicular: A long, sinoidly curved manubrium crowned with a toothed capitium behind the rostrum. (Fig 7b).

Breviavicular: A very short manubrium with a more or less straight basis crowned with a toothed capitium behind the rostrum. (Fig 7c).

Manubriopectinate: A long, more or less straight manubrium crowned with a number of large, equal teeth in one row, the lower tooth may be homologous with the rostrum, the upper ones are homologous with the capital teeth of avicular forms. (Fig 7d).

Sinupectinate: As the manubriopectinate, but with the manubrium sinoidly curved. (Fig 7e).

Monoaviculopectinate: As the breviacular, but often with basis curved and shifted, and with capitium drawn out into one row of large teeth. Rostrum and sometimes also subrostral process present. (Fig 7f).

Biaviculopectinate: As the monoaviculopectinate, but with capitium drawn out into two rows of large teeth. (Fig 7f).

Monopectinate: A very short manubrium, often with a curved and shifted basis and one row of large, equal teeth. One tooth may be homologous with the rostrum, another with the subrostral process, the rest are homologous with the capital teeth. (Fig 7g).

Bipectinate: A very short manubrium, often with curved or shifted basis, and two rows of large, equal teeth. Rostrum and subrostral process lost, teeth homologous with capital teeth. (Fig 7h).

Multipectinate: A very short manubrium, often with a curved and shifted basis, and with three or more rows of equal teeth. Rostrum and subrostral process lost, teeth homologous with capital teeth. (Fig 7i).

Isocapitiate: A long manubrium crowned with a smooth capitium of nearly or completely the same shape as the rostrum, and placed above, obliquely above or by the side of the rostrum. (Fig 7j). This type is found only in the family Oweniidae.

Opisthavicular: A manubrial plate with a more or less developed posterior shaft, with a toothed capitium behind the rostrum. The posterior shaft may be homologous with the manubrial shaft of the manubriopectinate type or with the posterior process of the avicular type. (Fig 7k).

Secondarily acicular: A long, broad or narrow manubrium, usually with a rostrum set at an angle to the manubrial shaft, capitium lost. (Fig 7l).

This may seem a lot of terms, but I do think they are necessary in order to make the following discussion comprehensible. Some features

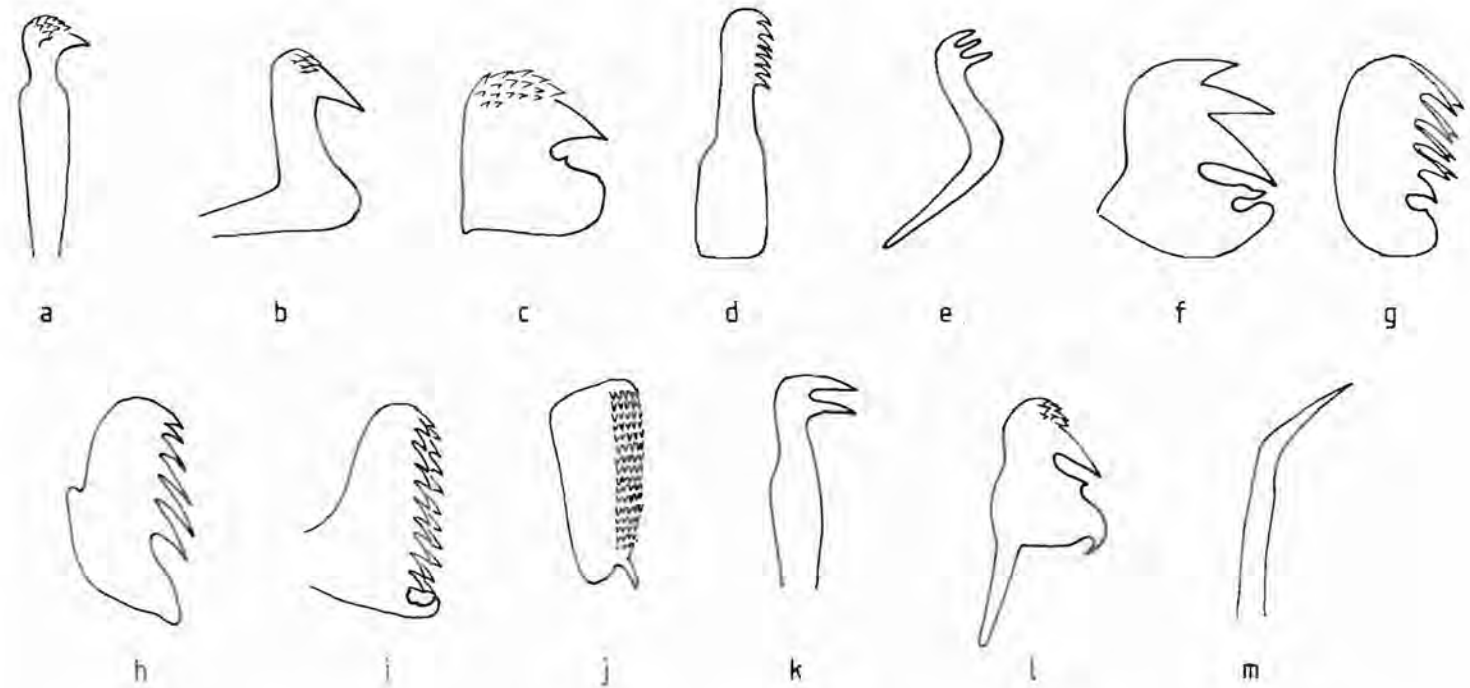


Fig. 7. Types of neurochaetae found in some sedentary polychaete families; a manubriavicular, b sinuavicular, c breviavicular, d manubriopectinate, e sinupectinate, f monoaviculopectinate, g biaviculopectinate, h monopectinate, i bipectinate, j multipectinate, k isocapitiate, l opisthavicular, m secondary acicular.

present in all or some of these types may, as already stated, be considered homologous. This holds above all for the manubrium, the capitum and the rostrum, which can be followed through the evolutionary series. It is also tempting to consider the sheaths of spionid and capitellid uncini homologous with the beard of maldanid uncini, and the proximal part of the latter homologous with the subrostral process of terebellomorph uncini.

On the other hand the subrostra of terebellid and sabellid brevi-avicular uncini are clearly not homologous, nor are the posterior shafts of the opisthoavicular uncini of *Rhodine*, *Longicarpus* and *Pista*.

The types of uncini listed above are all descriptive, and each may have evolved twice or more by convergence. Thus the brevi-avicular uncini of terebellomorphs arose by a shortening of the shafts of manubriopectinate type, whereas the similarly brevi-avicular uncini of the sabellids arose by a further development of the sinuavicular type. A similar development towards breviavicular uncini is taking place independently in the Rhodininae, where it has reached the opisthavicular form. The opisthavicular uncini found in the large genus *Pista* must have evolved from breviavicular uncini by an enlargement of the posterior process, and has gone furthest in *P. pacifica*, where it approaches acicular shape. The normal pathway towards secondarily acicular neurochaeta is directly from the manubriavicular type, as seen in *Terebellides*.

In the Terebellomorpha the following types of uncini are present: naked manubriavicular, breviavicular, opisthavicular, monoaviculopectinate, biaviculopectinate, monopectinate, bipectinate, and secondarily acicular. There are also a few examples of complete loss of uncini.

Two of these types can in the Terebellomorpha be explained as derived directly from the primitive manubriopectinate type; these are the brevipectinate and the secondarily acicular. All other types of uncini occurring within the order can be derived from the breviavicular. As stated above I interpret the opisthavicular uncini of certain terebellomorphs as derived from brevi-avicular uncini by the enlargement of the posterior process. In the Terebellomorpha there are two series of transition from the breviavicular to the pectinate types, one is via the monoaviculopectinate to the monopectinate, the other is via the biaviculopectinate to the bipectinate. All these transitions may have occurred more than once within the order. Thus for instance the monoaviculopectinate uncini of *Loimia* and *Polycirrus latidens* have evolved independently, and also independent of similar uncini in the Ampharetidae.

The function of the neuropodial uncini in the Terebellomorpha is mainly that of anchoring the worm within the tube. Hence the neuropodia and the uncini are persistent in the posterior part of the body, but are usually lost in some of the anterior segments. The capital teeth as well as the rostrum must have the function of gripping the inner lining of the tube, and one should suspect the pectinate types of giving a better grip than the avicular ones, and have a selective value. This evolution is paralleled by similar trends in e.g. the Oweniidae and the Serpulimorpha.

The most common type of neuropodia in the Terebellomorpha is one with low uncigerous tori, a morphological type corresponding to the function of anchoring. Another type, one with broad, leaflike neuropodia (pinnules), does occur. In a tubicolous genus like *Artacama* these may have the function of irrigating the tube, in a non-tubicolous genus like *Biremis* such neuropodia are used in swimming (Polloni et al. 1973). Tori may be short or long. In many species the length of the tori changes gradually through the segments, whereas *Auchenoplax* and *Melinnoides* have a few specialized thoracic segments with very long tori.

The uncini of *Pectinaria* clearly deviate from other terebellomorph uncini. In many species it is impossible to see which parts of the uncinus are homologous to those of the schematic uncinus (Fig 6). At least one species, *P. californiensis* Hartman, 1941, shows a variety of the biaviculopectinate type with a well-defined rostrum, a large capitium with two rows of each three teeth, and three smaller upper teeth in an arch, an enlarged subrostral process with a serrated edge, and the typical gutter-like subrostrum of the genus (Fig 8a). In other species, e.g. *P. regalis* Verrill, 1901, the rostrum as well as the subrostral process are lost, and the rows of capital teeth reaches down to the subrostrum (Fig 8b).

The types of uncini of the terebellomorph family-group taxa are shown in fig. 9. The uncini with a smooth capitium that are characteristic of the Oweniidae (Nilsen & Holthe 1985) have an evolutionary parallel in the Terebellomorpha, namely in the family Alvinellidae. The alvinellid uncini are, however, stout and breviavicular, and seem to be developed from a type that is common in the Trichobranchidae and the Terebellidae.

A complete loss of uncini is rare in the Terebellomorpha, and does not occur in any tubicolous species. The only genera without neuro-

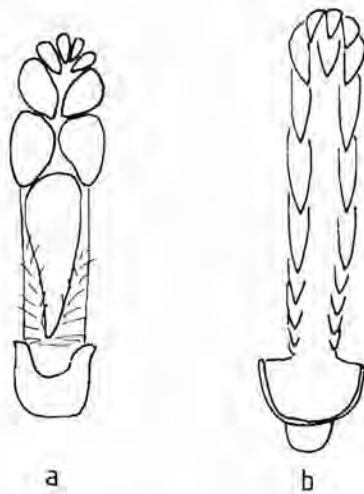


Fig. 8. Uncini of *Pectinaria californiensis* (a) and *P. regalis* (b), a after Hartman 1941, b after Long 1973).

The double rows of uncini in the subfamily Amphitritinae represent a character monothetically defining a taxon. Irregularly looped rows of uncini are present in the Thelepodinae, but these never take the form of strictly parallel rows. Such irregularly looped rows may well be the origin also of the double rows of the Amphitritinae. The uncini of the double rows stand front to front in some genera and back to back in some, and in the genus *Laphania* they are secondarily fused into one row with alternately oriented uncini.

The branchiae

There are abranchiate terebellomorphs as well as species with one dorsal branchia and species with one, two, three or four pairs of dorsal branchiae. Only *Streblosoma polybranchia* has been described as having five pairs of branchiae, but *Streblosoma* is a genus with completely reduced branchial stems, and it is not easy to count the number of branchiae in a veritable forest of free branchial filaments. I think a revision is necessary to ascertain the number of branchiae in *S. polybranchia*.

The dorsal branchiae may be notopodial in origin, like the notopodial branchiae of the Eunicomorpha, but in no recent terebello-

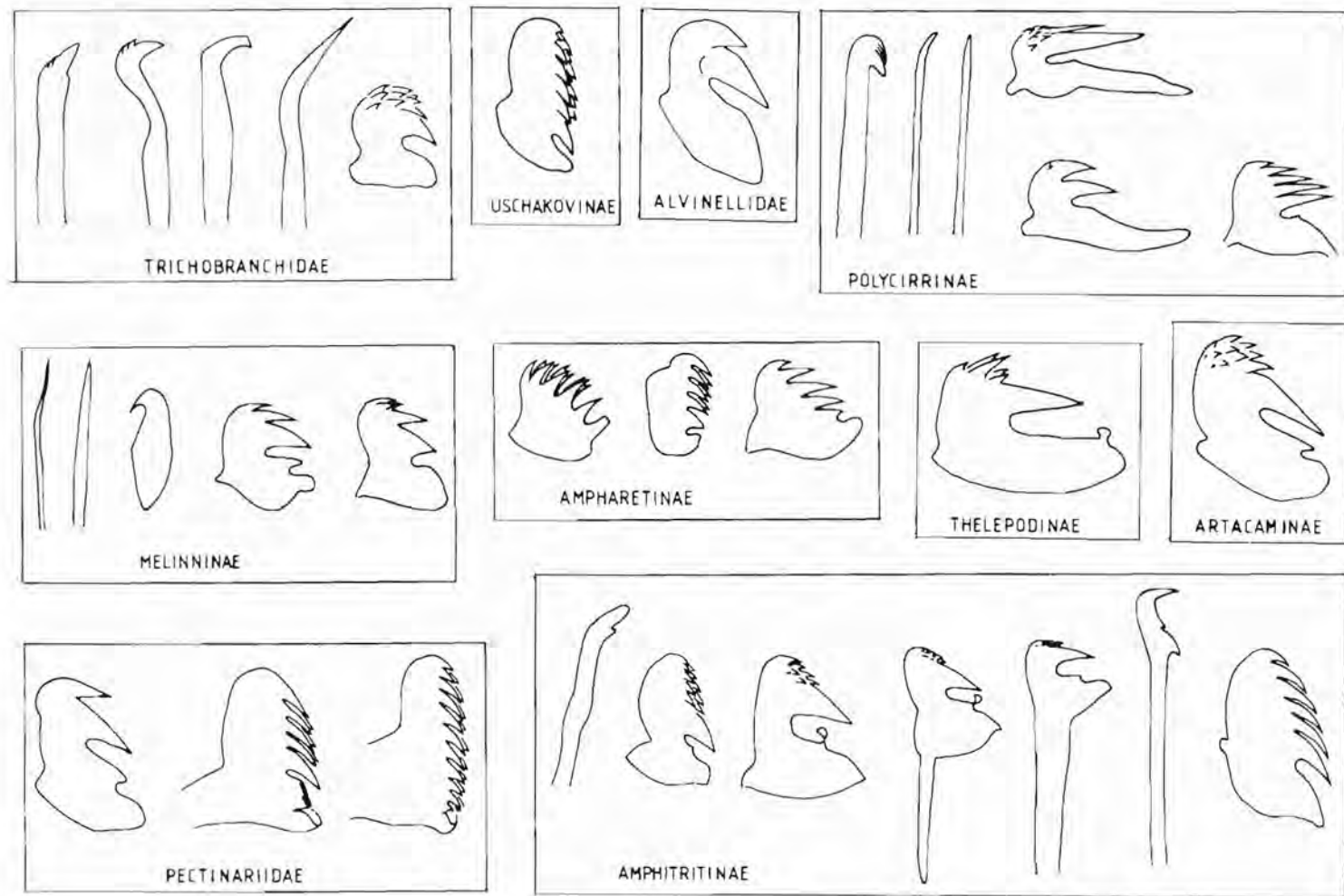


Fig. 9. Types of neurochaetae in the terebellomorph family-group taxa.

morph species are they directly connected with the notopodia. The branchial patterns present in the Terebellomorpha make it reasonably probable that all dorsal branchiae are homologous, pair by pair.

In two genera, *Alvinella* and *Enoplobranchus*, there are secondary, notopodial branchiae. These must have evolved independently in the two genera, which are systematically far apart, and are not homologous with the dorsal branchiae found in other genera.

Branchial shape varies from simple cirriform to dichotomous, arborescent, lamelliform, foliate, pinnate and rosettelike. The branchiae are placed more or less dorsally, from just above the notopodia to the middorsum, and superficially they appear on one or more of the thoracic segments. The branchiae contain blood-vessels and function as main respiratory surfaces of the worms.

I think it is reasonable to assume that in the Terebellomorpha there were originally four pairs of branchiae which were cirriform and placed just above the notopodia in segments II, III, IV, and V. From this arrangement can be derived all the known dorsal branchial patterns found in the order to-day.

There are certain events that may have taken place once or more during the evolution of the Terebellomorpha: 1. The development of other branchial shapes, by means of which the respiratory surface is increased. The primary changes of branchial shape are obviously from cirriform (*Ampharetidae*, *Trichobranchidae*) into foliate (*Ampharetidae*, *Trichobranchidae*), pennate (*Ampharetidae*), lamelliform (*Pectinariidae*, *Trichobranchidae*) or dichotomous (*Terebellidae*). The dichotomous branchiae have in turn given rise to the various arborescent types found in the related genera *Pista*, *Betapista*, and *Scionella*. The geometry of the latter change may have been the same as that described in botany from primitive psilopsids to modern terrestrial plants. An alternative explanation would be that the arborescent branchiae have developed from the dichotomous type with a long stem and short terminal branches found in *Axionice*, but the existence of very long branchiae with many short branches, as found in *Pista moorei* and *P. pectinata* makes this explanation less plausible. There is one case of arborescent branchiae being reduced to secondary cirriform, viz. the terebellid *Eupistella*, which otherwise is clearly very near *Pista*.

Another development from the dichotomous type is that resulting in a number of free filaments replacing each branchia. In *Amphitrite* the branchial basis is still above the skin, but in other genera, like *Thelepus* and *Thelepidus* (which in spite of their similar names belong to different subfamilies) the free filaments emerge separately.

Rosettelike branchiae are present only in the trichobranchid *Novobranchus*.

Fig. 10 shows but some examples of how terebellomorph branchiae can have evolved. The suggested convergences are of course based on a polythetic analysis bringing other sets of characters into discussion (cf. tables 1 - 2, pp.).

2. The loss of branchiae, usually pair by pair from behind, as in tubicolous annelids the anterior branchiae are the most effective for the purpose of respiration. An asymmetrical development of the branchiae is not common, but occurs in the genus *Pista*. Especially small forms, but also substantially large ones, have developed respiration through the body surface and lost the branchiae completely. That branchiae really are lost in abranchiate species was demonstrated by Annenkova (1926), who found blood-vessels leading to the dorsum of the abranchiate *Baffinia hesslei*.

3. The shift of the branchiae on the body surface. In many terebellomorphs one or all branchiae are moved towards the middorsum. This is most outspoken in the trichobranchid genera *Terebellides* and *Unobranchus*, where four branchiae are fused into one functional branchia, but is common also in the Ampharetidae. The forward shift of the branchiae, which is characteristic of the Ampharetidae, can be explained by the same mechanism which leads to the loss of posterior branchiae. When these animals are actively feeding they have their head region out of the tube (Fig 11), and will surely benefit from having all their branchiae arranged as far forward as possible. That it is a superficial shift, and not the formation of new branchiae by homeosis or some other process, was realized already by Meyer (1887) and Fauvel (1896). The backward shift of the branchiae in *Terebellobranhia* and, to a lesser degree, in *Polymniella*, is less easy to understand, but it is possible that these branchiae function better when the worm is respiring within its tube, and they may also improve the gas exchange of these rather long worms. The development of branchial patterns is schematically shown in fig. 12.

The function of the branchiae was discussed by Lindroth (1941). A thickening of the branchiae in deep-sea species was discussed by Fauvel (1933).

The loss of branchiae has taken place independently along several lines of evolution. It is most common in the Polycirrinae, where all living species lack dorsal branchiae (only *Enoplobranchus* has secondary notopodial branchiae), but it is also found in otherwise unrelated genera of the Amphitritinae, in one species of the

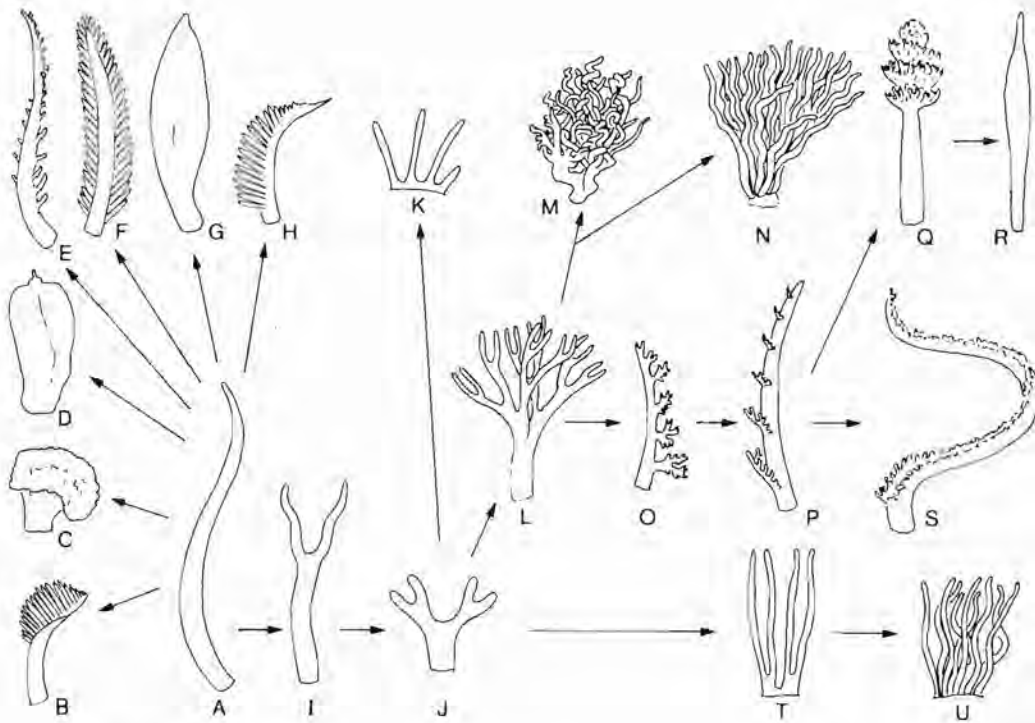


Fig. 10. Possible evolution of some terebellomorph branchiae. A: probably plesiomorphous cirriform type found in most ampharetids and in several trichobranchids, B: lamelliform type of *Terebellides*, C: rosette-like type of *Novobranchus*, D: foliate type of *Octobranchus*, E: papillose type of *Gnathampharete*, F: pennate type of *Isolda*, G: foliate type found in some ampharetids, H: lamelliform type of *Pectinaria*, I: hypothetical simple, forked type, J: primitive dichotomous type corresponding to that found in *Paramphitrite tetrabranchia*, K: dichotomous type with strongly reduced stem of *Thelepides*, L: typical dichotomous branchia of the Amphitritinae, M: dichotomous type with long end filaments of *Neoamphitrite*, N: branchia with reduced stem of *Amphitrite cirrata*, O and P: hypothetical intermediary types, Q: arborescent type of *Pista cristata*, R: secondary cirriform type of *Eupistella*, S: asymmetric branchia of *Pista pectinata*, T: hypothetical intermediary type, U: free branchial filaments of *Thelepus*. (Redrawn from several sources.)

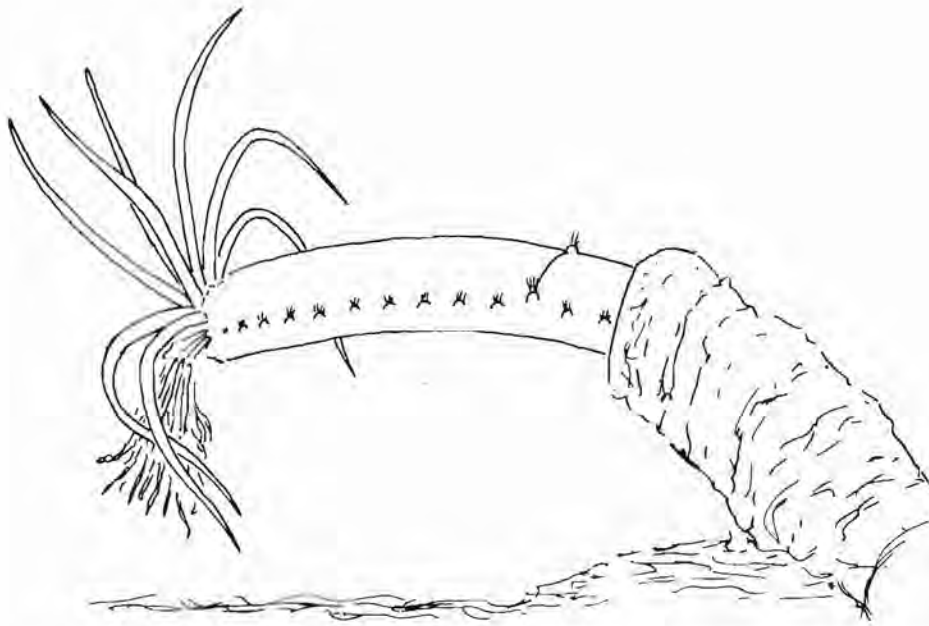


Fig. 11. *Anobothrus gracilis* in feeding position (Redrawn from Holthe 1986a.)

Thelepodinae, *Streblosoma abbranchiata*, and in one species of the Pectinariida, *Pectinaria abbranchiata*. In the Ampharetidae there are two isolated cases of complete loss of branchiae in *Emaga* and *Uschakovius*.

The prostomium

The prostomia of ampharetids and also alvinellids are well developed and might represent a condition not too far from the terebellomorph's errant ancestors. On the other hand trichobranchids, terebellids, and pectinariids have strongly reduced and distorted prostomia. In my opinion, much could be done, especially regarding the ampharetids, by sectioning and interpreting the prostomia to get better criteria to group the genera than those offered by the traditional meristic characters of the parapodia and branchiae. Such prostomial characters may in the future determine the systematics of the Ampharetidae on the tribal level.

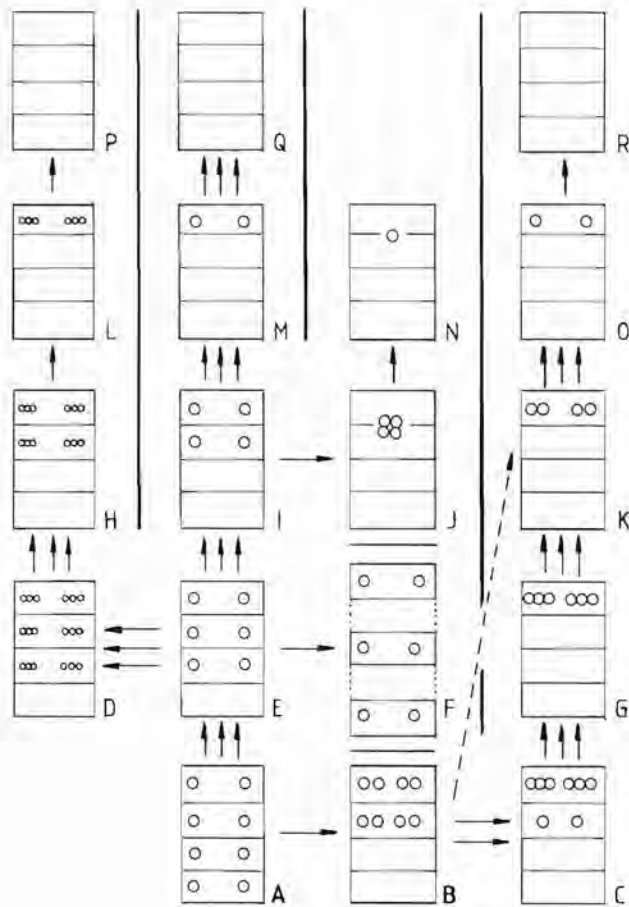


Fig. 12. Possible evolution of branchial number and position in the Terebellomorpha. Single arrows denote probably unique events, double arrows probable parallelism, and triple arrows denote two or more parallel or convergent developments. A: Plesiomorphous scheme with four pairs of branchiae in segments II-V; B, C, G, K, O, R: schemes of the forward shift of branchiae and reduction of branchial numbers in the Ampharetidae; E: scheme with three pairs of segmentally arranged branchiae; E, D: development of free branchial filaments in Artacaminae and Thelepodinae; D, H, L, P: reduction of branchial number in the Thelepodinae; E, I, M, Q: reduction of branchial number in the Amphitritinae; E, F: backward shift of branchiae in *Terebellobranchia*; E, I: reduction of branchial number in the Trichobranchidae, I, J, N: dorsal shift of the branchiae in *Terebellides* and *Unobranchus*.

Dorsal ridges

Dorsal ridges in one or more of the anterior segments are found in all pectinariids, occur commonly in the Melinninae, and are also found in the genera *Eusamythella*, *Melinnampharete*, *Melinnata*, *Melythasides*, and *Neosamytha* of the Ampharetinae, and in *Laphania* of the Terebellidae. A dorsal ridge in the hind part of the thorax is present in *Anobothrus*, and in this genus it is the base of a band of cilia across the dorsum. The function of these cilia is unknown.

When I propose (see catalogue part) to group the genera *Melinnampharete*, *Melinnata*, *Eusamythella*, and *Melythasides* as subgenera of *Melinnampharete*, and to erect a tribus for this genus and *Neosamytha*, it is based on the assumption that the dorsal ridges of these ampharetids represent a single evolutionary event, which overshadows the differences in meristic characters as discussed by Desbruyères (1978).

Lateral lobes

More or less well-developed lateral lobes in one or more of the anterior segments are present in a number of terebellomorph species, and occur in groups as far apart as Melinninae, Trichobranchidae, and Amphitritinae. They probably represent synapomorphy, but must have evolved independently in the three families. In the Amphitritinae there are species with lateral lobes as well as species without, but also in this subfamily it is impossible to exclude that the lateral lobes represent synapomorphy by parallelism in several lines.

Ventral shields

The ventral shields that are present in the anterior thorax of most terebellomorphs are connected with glandular epithelium secreting the inner lining of the tube. The presence of ventral shields is probably a plesiomorphous character state in the Terebellomorpha. In non-tubiculos species (especially among the Polycirrinae) the ventral shields are not surprisingly reduced.

The buccal organs

The tentacles and lips are the food-gathering devices of the terebellomorphs.

I am convinced that the tentacles and lips are homologous in all terebellomorph species. The upper lip takes very different shapes and sizes throughout the order, but it can always be identified. The lips may be very differently developed in different species, and to assess homologies of these structures in the Terebellomorpha, it is necessary to section the animals. This has yet been done only in the case of a few species (Dales 1955, Holthe 1977c), and the taxonomic potential of these characters has not been fully utilized.

The tentacles may be long or short, they may number from one to several dozens, and may be of various shapes; only exceptionally the tentacles are lacking.

Probably the tentacles originated as pharyngeal papillae. The jaws present in *Gnathampharete* that are discussed below, imply that the mouth of ampharetids is an original pharynx, and not an inversion. Then the position of the tentacles in Trichobranchidae, Terebellidae, and Pectinariidae must be due to eversion. Pharyngeal papillae can have been nutritionally functional from their very start, whereas dorsal tentacles on the prostomium could not function till they reached well over the rim of the upper lip and down to the mouth. As directed evolution is impossible under the theory of natural selection, the emergence of dorsal tentacles must have involved a change in function, but there is no clue to that the tentacles have had another function, e.g. one of respiration.

The larval development of terebellomorphs (Thorson 1946) seems to confirm that the tentacles are originally buccal structures. The eversion of lips and tentacles in trichobranchids and terebellids can be explained by the evolution of many and large tentacles of relatively large animals. These tentacles could cover much of the bottom around the tube-opening, and thus feed a large worm, but could not be accommodated within the pharynx.

The primitive terebellomorph tentacle may be the simple cylindrical type. From this type can be derived the pinnate tentacles of *Ampharete*, *Sabellides*, and some other ampharetid genera, the grooved tentacles that are the most common in the Terebellidae, and the giant tentacles found in certain genera of the Melinninae and in *Amythasides* (Fig 13).

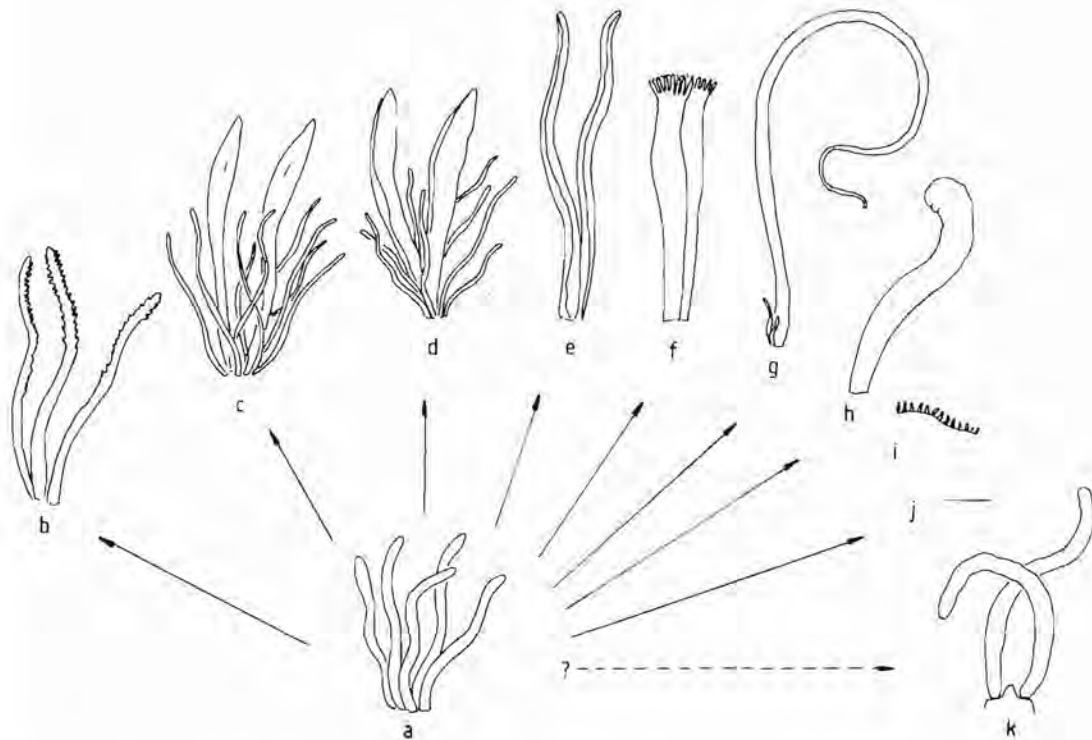


Fig. 13. Evolution of the tentacles in the Terebellomorpha. A: Probably plesiomorphous simple tentacles present in many ampharetids, B: papillose tentacles of *Ampharete* and related genera, C: differentiate tentacles of the Trichobranchidae, D: differentiate tentacles of the Polycirrinae, E: typically grooved tentacles of the Amphitritinae and the Thelepodinae, F: prolonged tentacular base of *Isolda whydaensis*, G: giant tentacle found in several species of the Melinninae, H: giant tentacle of *Amythasides*, I: reduced tentacles of *Amythas*, J: complete lack of tentacles in *Gnathampharete*, K: 'palps' of *Uschakovius*.

In several ampharetids, both in the Ampharetine (*Amythasides*) and the Melinninae (*Melinna monoceroides*, *M. tentaculata*, *Melinnopsis tentaculata* and *M. arctica*) there are species with differentiate tentacles, i.e. one or a few large tentacles and several smaller ones. In some species the small tentacles are lost, and there is only a large one left. In *Amythas* the tentacles are very much reduced, in *Gnathampharete* they are completely lost, and in these genera as well as in *Pabits* there are folded feeding membranes present. These could well be developed from the tentacular bases, which in *Isolda whydahensis* is very long but still bears short tentacles. The so-called palps of *Uschakovius* may well represent a pair of enlarged tentacles.

Differentiation of tentacles occur also in the Terebellidae, but only in the subfamily Polycirrinae, and in the Trichobranchiidae. When differentiation of the tentacles is present in species of these families, there are two types of tentacles, long broad ones, and short slender ones. The low and constant number of tentacles that has been recorded in a species like *Lanassa venusta* (Malm 1874, Sømme 1927b), is due to specimens that have lost their tentacles during capture or fixation (Holthe 1986a).

One of the great enigmas of the group is the jaw elements present in the buccal cavity of *Gnathampharete*. Do these represent innovation or rudiment, or perhaps a strange atavism passed on in a genome inherited from doubtless but very far errant ancestors? Such jaws may well be present also in other ampharetids, not all species have been investigated on this point.

In view of modern genetics, I am all in favour of the atavism theory. It is known that long segments of DNA in the genome of different organisms (including man) are not expressed in epigenesis (Stebbins and Ayala 1985). I would like to compare these 'files' of DNA to the data files of a magnetic disc. When the latter are erased by an operative system command, they are not immediately physically removed from the disc, but just taken off the directory. Indeed, one can buy 'unerase' programs that restore erased files. Can the same be done with genetic 'files'? Not only are there several examples of spontaneous atavisms in nature, but it has also been shown experimentally by Kollar & Fisher (1980) who grew chick's teeth from embryonic chick epithelium combined with mouse mesenchym.

Birds have been toothless for some 100 million years, the terebellomorphs have been jawless much longer, but have probably retained the genes that coded the formation of jaws in their errant ancestors. The jaws of *Gnathampharete* are probably not functional, and their selective value then is negative, as they represent an unnecessary energetic cost. This atavism may silently disappear in the subse-

quent course of evolution, but its presence to-day can perhaps tell us something about the ancestry of the Terebellomorpha.

Dales (1962, 1963) founded his analysis of family-level relationships among the polychaetes on the structure of the pharynx. Another and different view was held by Storch (1968), and Dale's theories were criticized by Orrhage (1973b).

The intestine

The intestine of terebellomorphs was investigated already by Claparède (1873), and it was shown that these animals do not have the simple intestine of the 'schematic' polychaete. It is differentiated into parts with different histology and clearly with different function. In large forms the intestine is much longer than the body. The information on intestinal structures is, however, too scarce and connected with too few species to form a basis for taxonomic analysis. (See e.g. Steen 1883, Meyer 1887, Wirén 1885, Fauvel 1897b, Dales 1955, Michel et al. 1984).

The coelom

The primitive condition of the coelom in polychaetes is one where each segment internally is bordered by mesodermal septa. In the Terebellomorpha such segments are found only in the abdomen, the thorax consists of two syncoelomic compartments. As mentioned above (under 'notopodia and notochaetae'), the position of the first abdominal septum would serve much better for the definition of thorax and abdomen than do the commonly used presence and absence of notochaetae. Information on the coelomic features of the various species is, regrettably, too scarce to allow phylogenetic or taxonomic discussion.

The nephridia

Hessle's (1917) work on terebellomorph taxonomy was to a great extent founded on the nephridial constellation of the genera. This information may still be taken into consideration for taxono-

mic purposes, but unfortunately subsequent authors have not published much about the nephridia of species and genera that have been discovered after 1917.

Banse (1979) follows Hessle in stressing the taxonomical importance of the nephridia, as he states that anatomical features are presumably evolutionary more conservative than external characters. I find it hard to accept the logic of Banse's statement. Anatomical features are subject to the same evolutionary mechanisms as external characters are. The state of all characters is depending on evolutionary variables such as genetic coding, selection pressure, function, habitat, and time. The only outstanding property of anatomical characters is in my opinion that their state is more difficult to establish. The very case Banse treats, viz. that of the relationship between *Hobsonia* and *Hypania*, contradicts his statement, as especially the nephridia must be expected to undergo profound and rapid evolution in species adapting to a life in brackish or fresh water.

The primitive condition among polychaetes is one of segmentally arranged nephridia, one pair in each segment. In the Terebellomorpha this pattern is reduced to a few nephridia in each of the two thoracic compartments of the coelom. The direction of apomorphy is clearly reduction in number and differentiation of the nephridia. As nephridia originally were segmental organs, their number is a meristic character of the same nature as the number of branchiae and parapodia. Thus the same considerations of synapomorphy and convergence must apply to the nephridia.

There is one conspicuous synapomorphy of the nephridia in the Terebellidae, viz. the fused nephridia present in the genera *Lanice*, *Lanicides*, *Loimia*, and *Terebella*. Of these only *Lanice* and *Lanicides* are obviously closely related. As the nephridial pattern of a majority (24, see table 2, p. ...) of the genera of the Amphitritinae is completely unknown, it is at present impossible to discuss the phylogenetic implications of these patterns.

The nervous system

The nervous system of polychaetes has formed the basis of several discussions of polychaete phylogeny (Orrhage 1978, 1980). This set of characters is, however, not sufficiently investigated in the case of the Terebellomorpha to form a basis for systematic analysis. In future, the nervous system can be expected to provide characters for classification, especially on the family-group level.

The circulatory system

The anatomy of the circulatory system has been used at least once in terebellomorph taxonomy, viz. by Annenkova (1926) who demonstrated the secondary loss of branchiae in *Baffinia hesslei* by finding the rudimental blood vessels leading to the branchial sites on the dorsum.

Such anatomical work ought to be carried out also on other abran-
chiate terebellomorphs, and on forms with superficially shifted
branchiae (especially *Terebellobranchia*).

There are obvious biochemical differences in the composition of the
blood of the terebellomorphs, as there e.g. are species with red and
green blood respectively. These characters do, however, remain to be
investigated for taxonomic use.

Colour

The colour of the living terebellomorphs varies from pale to red-
dish, brownish, and greenish. A few forms, mostly small ones, are
transparent, and some have patterns, such as dots or stripes, on the
body, branchiae, or tentacles. Some species alter colour through
life, and in some species the sexes are differently coloured. A
majority of the species are described from preserved specimens, and
the colour of the living worm is therefore unknown. The colours can
be used for identification of living terebellomorphs, but as far as
I know, nobody has attempted to discuss the colours in terms of
evolution or phylogeny.

The tube

The evolution of tube-building was discussed by Knight-Jones (1981),
but she does not mention whether she considers this evolution to be
an unique event in the Polychaeta. To me the presence of highly
developed tubes in clearly errant forms like the Onuphidae shows
that it has happened more than once. It is not improbable, however,
that tube-building in the Terebellomorpha and certain other sedenta-
ry groups evolved just once in a common ancestor.

The biology connected with tubicolous life has been treated by several authors, among these Mettam (1969) and Webb (1969). The ideas of Webb were strongly opposed by Orrhage (1973b).

A tube is not universally present in the Terebellomorpha, but the order may nevertheless be characterized as one of tubicolous annelids. The non-tubicolous species all belong to the subfamily Polycirrinae of the Terebellidae. To me it is obvious that this lack of tubes is apomorphic within the order.

A return to an errant way of life has evolved only within the subfamily Polycirrinae, in the genera *Amaeana*, *Lysilla*, *Hauchiella*, and *Biremis*, and in some species of *Polycirrus*. In the last genus there are also some species that build only a transitory tube. There are several types of tubes in the Terebellomorpha, they differ in proportion, incrustation, and shape. The original type of tube may have been a straight cylindrical one, incrustated with sand and mud, free from the substrate, stationary and horizontal. The highly regular, vertical and movable tubes of the pectinariids, the crowned tube of *Lanice*, the sinoidal tube of *Axionice flexuosa*, the helically coiled tube of *Streblosoma*, and the anchored tube of *Thelepus* must be later developments.

Certain morphological features of the terebellomorph body are connected with tube-building. These are for instance the ventral shields, which have glandular surfaces secreting the inner lining of the tube, and the uncini which anchor the animal within the tube. It is therefore not surprising that these very structures are reduced in the non-tubicolous forms.

The pectinariids start building their short, conical tube already before they settle on the bottom. The diameter of the tube grows with the animal, and if an adult *Pectinaria* is removed from its tube, it is unable to build a new one, and will die (Hessle 1925). The terebellomorphs of the other families generally have no larval tube but build a long, cylindrical adult tube, and if they are removed undamaged, they will start building a new tube.

Feeding

Feeding in sedentary, deposit-feeding polychaetes has been treated by several authors, lately by Jumars et al. 1981, Jumars et al. 1982, and Taghon & Jumars 1984. The knowledge on polychaete feeding was reviewed and discussed by Fauchald & Jumars (1979).

The terebellomorphs have generally been considered as deposit-feeding infaunal polychaetes. All are benthic, only *Biremis* has a limited faculty of swimming, but several species are epifaunal. There are several ways of deposit-feeding within the order, and as shown by Buhr & Winter (1977), and Hartman (1963) suspension-feeding occurs in *Lanice* and *Reteterebella* respectively.

Uptake of dissolved organic matter and the presence of epibiotic (and most probably symbiotic) bacteria have been demonstrated in the Alvinellidae (Desbruyères et al. 1983 and results presented by Gaill, Desbruyères and Alayse-Damet at the 4th Deep-Sea Biology Symposium in Hamburg, 1985). It is not impossible that this phenomenon should occur also in other terebellomorphs, but judged from the enlarged body surface of the alvinellids (especially the clearly apomorphic genus *Alvinella*), the ratio of dermal uptake to ingestion must be higher in this family than in any other terebellomorph.

The feeding ecology must be different in species with short and species with long tentacles. The tentacles have been shown to function either as conveyor belts bringing in food particles by ciliary movement of the outstretched tentacle, or by pulling in food particles by contraction. The feeding of terebellomorphs was treated in detail especially by Hesse (1925) and Dales (1955).

Movement

I do agree with Clark (1964, 1969) and Fauchald (1974) that the coelom of the polychaetes' ancestors developed as a hydrostatic skeleton for digging by peristalsis. This type of movement must have antedated the parapodial movement which is characteristic for errant polychaetes. Peristalsis is still important, not least in sedentary, tubebuilding polychaetes. Some of the few non-tubicolous terebellomorphs rely on peristalsis for digging and propulsion. I have watched this phenomenon in *Lysilla loveni* (Holthe 1986a).

Most terebellomorphs can be considered as stationary. However, the pectinariids move through the sediment with their short tubes, *Artacama* has developed an extraordinary capacity of digging, and constructs only a loose, transitory and energetically cheap tube, and the non-tubicolous species are capable of moving, either through the sediment, or in the water just above (*Biremis*). Even species with permanent, stationary tubes (e.g. *Thelepus cincinnatus*) can cover considerable areas by fast tube-building.

Reproduction

The role of reproduction in the process of speciation of polychaetes was discussed by Clark (1977). The evolution of the life cycle of marine invertebrates was discussed by Jägersten (1972), and the reproduction and larval development of several terebellomorphs were treated by Thorson (1946).

Generally the terebellomorphs are dioecious, but hermaphroditism has been reported in *Pectinaria koreni* (Dehorne 1925a). Most species produce large, lecithotrophic eggs that are spawned directly into the water, and so are generally the spermia. The eggs hatch as meroplanktonic larvae that spend some time in the water masses before they metamorphose into bottom-living juveniles. Only in the Pectinariidae there is a transparent larval tube.

Brood protection has developed in the viviparous *Alkmaria* (Wesenberg-Lund 1934, Thorson 1946). In *Nicolea zostericola* which shows morphological sex differences, the males leave their tubes to find the females, and after spawning an egg cocoon is formed which is fixed to the tube or to algae. Development in *N. zostericola* is direct, and the juveniles hatch in the bottom stage (Herpin 1925a, Eckelbarger 1974, 1975, 1976). Both these examples clearly represent isolated autapomorphies, and presently the reproduction offer no clue to the large scale evolution and taxonomy of the order.

Ontogenesis

On the ontogenesis of polychaetes, as larvae and juveniles, much could be done both in field and experiment to elucidate their evolution and systematics. Most of this work remains, however, to be carried out.

Predation upon the terebellomorphs

Predation is an important selective agent in polychaetes as in other animals. The evolution of cephalization and the shift of branchiae in terebellomorphs can easily be correlated with predation. Clearly, an ampharetid with branchiae shifted forward can withdraw more quickly than could its ancestors, and is less susceptible to be eaten by fishes that browse on tubicolous polychaetes (fig 11).

FOSSILS

Fossil tubes that may have been formed by terebellomorphs have been reported from strata dated as Neogene, Cretaceous, Carboniferous, Silurian, Devonian, Ordovician, and Cambrian (Prantl 1950, Howell 1953a, b, Roger 1959, Haymon, Koski & Sinclair 1984). Several fossil genera and species have been erected, these are listed in the catalogue part. Regrettably, I have not been able to verify all the descriptions of fossil taxa, and consequently some of these are not listed in the bibliography.

Unlike animals with skeletal parts, polychaete bodies are only rarely fossilized. Among the the soft bodied fossils known (e.g. from the Burgess Shale), none seems to throw light upon the ancestry of the Terebellomorpha.

DISTRIBUTION

As pointed out by Fauvel (1959) the distributional pattern of polychaetes seems to deviate from that of certain other major marine invertebrate groups, in that the genera and species regularly have wide geographical ranges rather than being restricted to single zoogeographical regions. Earlier I have shown (Holthe 1978) that the Terebellomorpha in this respect behave as representative polychaetes.

On the family-group level only one family (Alvinellidae) shows a limited geographical distribution, the other families and subfamilies are ubiquitous in the oxygenated and euhaline waters of the World. Some genera, like *Ampharete* and *Terebellides*, are found also in brackish water. *Alkmaria* seems to be restricted to brackish water, and *Hypania* and related genera obviously are brackish-water forms that in some cases even penetrate into fresh water.

The wide distribution of the family-group taxa and of many genera must depend on two causes: the Terebellomorpha is an ancient group of animals, and as typical polychaetes many of the species are eurybath and eurytherm. The recent family-groups may have been present in Panthalassa, before the later geographical and physical barriers were formed.

When several polychaete species, like *Terebellides stroemi*, *Pista cristata*, and *Thelepus cincinnatus*, have been considered as cosmopo-

litic species, this most probably depends on insufficient knowledge of the taxonomy. Recently we have seen the notorious cosmopolitan species *Terebellides stroemi* being split into several allopatric, and in some cases even several sympatric species (Williams 1984, Imajima & Williams 1985).

At the International Polychaete Conference in Sydney, 1983, I presented a poster on the regional zoogeography of the Terebellomorpha, with calculations of similarity on the specific and generic levels between the marine regions of the World. These calculations, the resulting cluster analyses, and a discussion on zoogeography were originally planned to form a part of the present paper. During the last two years there has, however, turned up so much new information regarding terebellomorph taxonomy and distribution, that the similarities have to be recalculated. The original calculations were made by hand, but now I plan to enter the data on a spreadsheet, by means of which the similarity matrices can be easily updated. This work is in progress, but the results cannot yet be presented.

In the catalogue part (v.i.) I have attempted to give the regional distributions of the genera and species. It must be stressed that these distributions are compiled from the literature, and are generally not revised.

THE TAXA

The 'archaeoterebellomorph'

None among the hitherto known terebellomorphs can be considered as a 'living fossil'. There are primitive traits in several genera in most families, but these character states are always combined with apomorphic states in other sets of characters.

To find the evolutionary basis of the Terebellomorpha, like Fauchald (1974) sought the primitive polychaete, I have tried to combine plesiomorphous character states to reconstruct an 'archaeoterebellomorph'. The idea is that this hypothetical creature should make it possible to trace the routes of evolution leading to the recent forms, and that it would be the basis for comparison with other groups of polychaetes.

The 'archaeoterebellomorph' must have been tubicolous, as there are no primitive non-tubicolous forms in the order. It had no jaws, but

functional tentacles. The prostomium was well-developed, and the tentacles could be retracted. The notopodia and neuropodia appeared on segment II and extended throughout the body. Its notochaetae were probably of one type, simple and perhaps brimmed; its neurochaetae were most probably of the manubriavicular type. The dorsal branchiae were detached from the notopodia, and probably there were four pairs of simple branchiae, on segments II - V. (Fig. 14). The anterior (thoracic) coelom consisted of two compartements and contained a long intestine and numerous pairs of free nephridia.

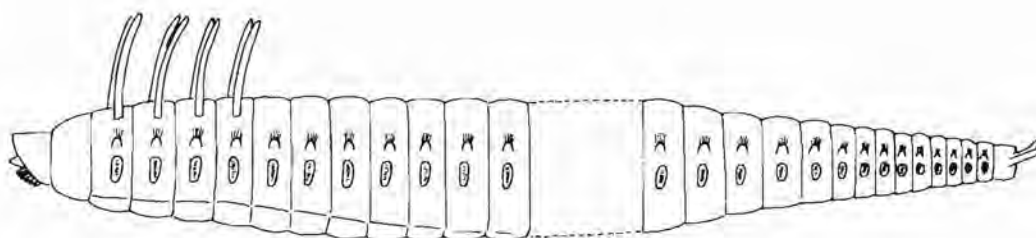


Fig. 14. Schematic representation of the 'archaeoterebellomorph'.

The position of the Bogueidae

The genus *Boguea* Hartman, 1945 was erected for the species *B. enigmatica* Hartman, 1945. Already the specific name signalizes the problems of its classification. Just one related species has shown up, this is *Boguella ornata* Hartman & Fauchald, 1971.

Hartman (1945) originally referred the genus *Boguea* to the family Oweniidae, but Hartman & Fauchald (1971) erected the family Bogueidae for the two genera. Later Fauchald (1977a) has included this family in an order Terebellida along with the four terebellomorph families and the Sabellariidae.

Wolf (1983) moved the Bogueidae to the family Maldanidae, and reduced the former taxon's rank to that of a subfamily. When Nilsen and I (Nilsen & Holthe 1985, ms submitted early autumn 1984) wrote our comments on the position of the family, we were unfortunately unaware of Wolf's work, but we also came to the conclusion that *Boguea* and *Boguella* were maldanids.

All living species of the Oweniidae have long-shafted uncini with smooth capitia, belonging either to the manubriaviculate or to the isocapitiate type. The smooth capitium is the synapomorphic character of the Oweniidae (Nilsen & Holthe 1985), and I agree with Hartman & Fauchald (1971) that *Boguea* and *Boguella* cannot be incorporated within this family.

The only reason for grouping the two genera with the Terebellomorpha is the presence of 'terebelloid uncini' (Hartman & Fauchald 1971). How the family should fit in among the terebellomorphs has never been discussed. There is one terebellid genus that might resemble the bogueids, viz. *Rhinothelopus* Hutchings, 1974. In my opinion the likeness of the peristomium-prostomium of these forms is clearly superficial, and the somewhat similar form of the following segments due to convergence. Moreover, the chaetae of *Rhinothelopus* resemble those of the other genera of the Thelepodinae, which those of the bogueids do not.

When one examines Hartman & Fauchald's (1971) figures of the bogueid uncini, it is obvious that they resemble those of the terebellids, but there are two characteristics that are likely to arise suspicion. One is the strongly sinuous outline of the lower subrostrum, the other is the pronounced posterior process. Such uncini could indeed be derived from uncini similar to those of the maldanid genus *Rhodine* Malmgren, 1867, rather than from terebellid uncini (Fig 15). Also the notochaetae of the bogueids are similar to notochaetae found in maldanids, however, not in *Rhodine*; such notochaetae are not common in the Terrebelloomorpha. The long segments of *Boguea* and *Boguella* represent a typical character of the maldanids, a character that is very rare among the terebellomorphs.

It is my conclusion that the sister group of the bogueids should be sought within the Maldanidae, and I agree with Wolf (1983) that they should be classified as a subfamily of this family.

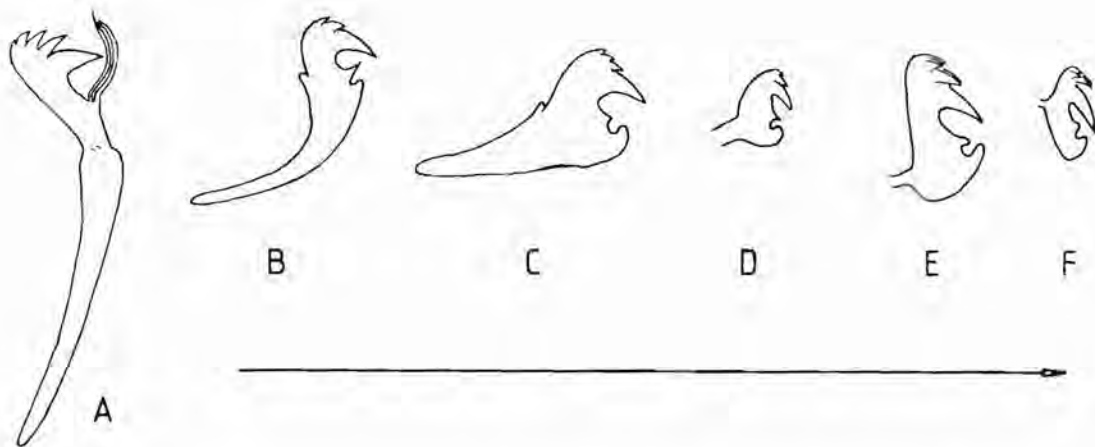


Fig. 15. Possible direction of evolution of uncini in the Maldanidae and the Bogueidae. A: plesiomorph manubrioavicular type, B: typical curved manubriavicular uncinus of the Rhodininae, C: uncinus of *Rhodine gracilior* Tauber, 1879, D: uncinus of *Rhodine bitorquata* More, 1923, E: uncinus of *Boguea enigmatica* Hartman, 1945, F: uncinus of *Bogueella ornata* Hartman & Fauchald, 1971. (C after Hartmann-Schröder 1971, from Uschakov, D after Hartman 1969, E-F after Hartman & Fauchald 1971.)

The position of the Sabellariidae

The family Sabellariidae has indeed been a vagant family of polychaetes, which during the progress of systematics has wandered to and from the orders Spiomorpha, Terebellomorpha and Serpulimorpha. I disagree with Fauchald (1977a) that the sabellariids should be grouped with the terebellomorpha as a family of the order. On the contrary, I agree with Knight-Jones (1981) that they are closer to the Sabellidae than to any other family of polychaetes, even if the relationship may be a distant one. Accordingly, the Sabellariidae should be grouped within the Serpulimorpha.

The position of Alvinellidae

This family was originally described as a subfamily of Ampharetidae, but was raised to the rank of family by Desbruyères and Laubier (1985). I fully agree with this emendment, and was indeed prepared to undertake it myself, had I not met Desbruyères and been shown their manuscript (July 1985).

This family is one of the most recently discovered polychaete families, two genera with a total of five species are known, all confined to certain hydrothermal vents of the eastern Pacific. More species may be expected as more vent communities are investigated, and the alvinellids are so far the only vent animals that show speciation within the hydrothermal environment (Desbruyères & Laubier 1979, 1980, 1982, 1984, 1985, Autem et al. 1985).

The most striking "ampharetid" feature of the alvinellids is the presence of retractable tentacles. This represents symplesiomorphy, and the common ancestry of the two families might be very remote. Desbruyères & Laubier did not section their scarce type material.

Later investigations on the vents have resulted in a bounty of alvinellid specimens (Desbruyères, pers. commn), and I should very much like to section the buccal region of these animals and compare them to other terebellomorphs. I agree with Desbruyères and Laubier (1985) that *Paralvinella* is the more primitive of the two genera.

The presence of notopodia throughout the body is a plesiomorphous condition, unknown in living ampharetids and trichobranchids, but occurs in several genera of two separate terebellid subfamilies.

Desbruyères & Laubier (1979) don't mention whether they consider the modified hooks of segment V of *Alvinella* as notopodial or neuropodial, but later (Desbruyères and Laubier 1982) they have stated that the hooks are neuropodial. The chaetal configuration of *Paralvinella pandorae* (Desbruyères & Laubier 1985) suggests, however, that the specialized chaetae are notopodial.

The uncini of the alvinellids show clear autapomorphies (they are unusually thick and have smooth capitia), but are in their general shape avicular and hence plesiomorphous to the pectinate uncini found in living ampharetids. The subrostral process is reduced, as in the trichobranchid genera *Trichobranchus*, *Artacamella*, and *Terebellides*.

The notopodial branchiae of the alvinellids are secondary develop-

ments, connected with their feeding in an environment exceptionally rich in dissolved organic matter.

Already with the limited information at hand, I mean it is possible to conclude with some certainty that the alvinellids are not comparatively recent offspring of an ampharetid stock, but that they must have separated from the other known terebellomorphs long ago, perhaps about the time when the ampharetid and trichobranchid lines parted. It is therefore in my opinion justified to treat the group as a separate family.

Fossils of a possible alvinellid hydrothermal vent worms from the cretaceous have been described by Haymon et al. (1984).

The position of *Uschakovius*

The affinities of *Uschakovius enigmaticus* Laubier, 1973 are indeed enigmatic. Laubier (1973) discussed whether the species should be considered a sole representative of a new family, but concluded that it was a highly aberrant member of the Ampharetidae. In his discussion he also mentioned that more particularly the subfamily Ampharetinae with genera lacking postbranchial dorsal hooks is defined by a certain number of well-known morphological characters (my translation), but he did not explicitly place his genus within this subfamily, nor did he erect a new subfamily.

The ampharetid identity of the genus depends solely on the presence of ampharetid type uncini in the abdomen. The prostomium and peristomium might as well be interpreted as terebellid with only two tentacles (Laubier's 'palpes') and a narrow upper lip (Laubier's 'prostomium'). These organs may be explained as ampharetid tentacles, provided a secondary reduction of the prostomium. The giant tentacles cannot be accommodated within the buccal cavity, even if it were of the typical ampharetid construction. A simplification of useless buccal structures may be energetically convenient, this may be especially important in the evolution of a deep-sea species like *U. enigmaticus* which lives in a quiet environment poor in nutrients. Such simplification of the buccal structures combined with the retardation of segment formation might represent paedomorphosis (as defined by Gould 1977).

Even if the character of the tentacles falls without the definition of the Ampharetidae, I consider the information provided by the chaetae as more important. Moreover, cylindrical tentacles like those of *Uschakovius* are less common in the Terebellidae than

grooved ones. This must, however, be a subjective judgement; if *Uschakovius* is a terebellomorph, it is either an ampharetid with tentacles showing convergence with those of the terebellids, or a terebellid with uncini showing convergence with those of the ampharetids.

As there is no clue to which ampharetids *Uschakovius* is most closely related, I shall erect a new subfamily, the Uschakovinae, for this genus. As I have stated above, it does not trouble me that this establishment of a new subfamily probably leaves the Ampharetinae as a paraphyletic taxon. The diagnosis of the new subfamily can be found among the diagnoses of the suprageneric taxa (v.l.).

Monophyletic groups of taxa

When searching for monophyletic groups of taxa and their evolutionary history, it does not suffice to copy the cladogram of one or a few characters. All characters are subject to parallel and convergent evolution, and it is not always evident from their recent state which states they have passed through in the evolutionary history of the organisms. Parallelism was recently discussed by Gosliner & Ghiselin (1984), and I do agree with these authors on three central points. These are in my words that parallelism occurs normally in the evolution of organisms, that it is more interesting to reveal what actually took place in evolutionary history than to construct a most parsimonious cladogram, and that the analysis of function is pertinent and important in evolutionary research.

One problem with phylogenetic analysis is that evolution does not proceed as dichotomies at regular intervals - neither if measured in time nor in phenetic distance. Any major beneficial innovation in the course of evolution seems to lead to an adaptive radiation, the theoretical dichotomy of which cannot be resolved. On a large scale evolution appears as a series of successive radiations. This picture of course covers polychaetes as well as other organisms, and seems to fit well with the statement by Blake (1979) that some spionids are rapidly evolving and appear to be of recent origin, whereas other groups are much older.

One cannot in the Terebellomorpha, any more than in other animal taxa, expect to find monothetically defined monophyletic groups. On the contrary, an attempt to do so may lead to the establishment of clearly polyphyletic taxa, as for instance the

inclusion of all abbranchiate terebellid genera in the subfamily Polycirrinae by Day (1967). On the foundations of evolutionary taxonomy we should not classify characters, not even the animals according to their characters, but try to reveal the evolutionary history that led to the recent fauna. This aim is not easily achieved when working with a group without substantial fossil evidence, but I believe one can approach the problem by analyzing the function and evolutionary trend of the characters.

Affinities with other annelids

The relationships between the polychaete orders are very uncertain, but theories on this subject have been forwarded by i.a. Storch (1968) and Mettam (1971). I have not set out to deal with these matters in the present work, but there is one theory that I would like to mention briefly here. Light (1980) presents a phylogeny where he derives *Pista* and the other Terebellinae (sic!) from the maldanid genus *Rhodine*, on the grounds that their uncini are similar. This theory is nothing but preposterous, and shows where one can arrive by discussing one character and closing one's eyes to the rest of the organisms. I can here only refer to the chapter on neuropodia and neurochaetae (v.s.) where I show how superficially similar types of uncini have developed by convergence in different sedentary families (fig 9).

Nilsen & Holthe (1985) listed a number of families which either had genera with long-shafted avicular uncini, or genera with uncini that most probably were derived from such. These families are: Chaetopteridae, Psammodrilidae, Capitellidae, Arenicolidae, Maldanidae, Bogueidae, Oweniidae, Pectinariidae, Ampharetidae, Trichobranchidae, Terebellidae, Sabellariidae, Sabellidae, Serpulidae and Spirorbidae.

The long-shafted avicular uncinus is a structure that may be sufficient complex and uniform to represent a single evolutionary event. A simpler form of long-shafted neurochaeta is known in the Spiomorpha and the Eunicomorpha.

The jaws of *Gnathampharete* (v.s.) - provided they really are an atavism - represent a very thin thread connecting the Terebellomorpha with the Eunicomorpha. I have searched the literature on the Eunicomorpha for possible closest relatives within this order, and it is tempting to look among certain dorvilleid genera. It must be remembered, however, that these recent eunicemorphs are not the

ancestors of any sedentary polychaetes, but possibly their many millionth cousins, which have had just the same time to evolve away from the common ancestral forms. I have found no single genus among the recent or fossil eunicemorphs that has jaws conspicuously similar to those of *Gnathampharete*.

Taxonomic consequences

In the Terebellomorpha, and especially within the Ampharetidae, there are many monotypic genera. One cannot completely avoid monotypic genera, some species are evolutionary so isolated that they cannot be placed within existing genera, e.g. *Uschakovius*, *Gnathampharete*, *Alvinella*, *Biremis* and *Longicarpus*.

On the other hand, when all genera become monotypic, the generic category has become void of information. Traditionally, when new terebellomorph species have been discovered that did not fit all meristic and qualitative characters of any existing genus, a new genus has been erected. As I have argued above, all characters are subject to evolutionary change, and it is impossible to place some sets of characters above others as being of 'generic importance', as there is - unfortunately? - no law of nature giving an order of changing characters. Not only are they all subject to change; they do so simultaneously.

The natural way of establishing genera should thus be to group the species and define the genera accordingly - with the necessary emendations of the generic diagnoses. When this procedure results in a taxonomy that is not very different from the traditional taxonomies, it is not surprising, it only reflects the sound subjective judgement of polychaete taxonomist.

Genera are subjective entities, and will always be. But they should be natural groups of species, not polyphyletic ones. For practical reasons genera are treated as boxes containing one or more species. There is no standard size of these boxes, because apart from the practical value they also reflect the degree of radiation within a group of closely related species. The fossil records of other animals show us that evolution proceeds as successive adaptive radiations in different lines (Simpson 1944, 1953, Stanley 1979). Polychaete fossils are few, but there is no reason that this class should not follow the same pattern as molluscs, arthropods, echinoderms, and vertebrates. Hence there must be large genera as well as monotypic ones. This evolutionary aspect often collides with the

practical needs. The classification of a taxon has to be a compromise, but large genera can often be made easier to handle by establishing subgenera.

I have changed the rank of some genera into subgenera (e.g. *Irana* and *Oerpata* as subgenera of *Isolda*, and *Melinnata*, *Eusamythella*, and *Melythasides* as subgenera of *Melinnampharete*).

The tribal level has never been utilized in the Terebellomorpha, and to my knowledge hardly at all in the Polychaeta. Once one has produced a probable cladogram, the need for additional categories is obvious. Families and subfamilies are presently well defined, but within the family-group taxa there are certain groups of genera that clearly are related, and I have established tribi for these. There are, however, several isolated genera with uncertain affinities. I have refrained from establishing monotypic tribi for these, thus leaving the tribal level incompletely classified. Neither have I established tribi within the smaller family-group taxa such as Pectinariidae, Uschakovinae, Alvinellidae and Artacaminae. In polychaete systematics there is indeed precedence for such incomplete classification, viz. the families that Fauchald (1977a) could not include in any intermediate category, and which he listed alphabetically under the order.

The tribal-group taxa have for practical reasons not been used in the catalogue - alphabetical order within the family-group taxa has been preferred - but they are listed and diagnosed with the other suprageneric taxa below:

Diagnoses of the suprageneric taxa

Order TEREBELLOMORPHA

Polychaetes with vermiform or short cylindrical body usually with two or three distinct regions. Prostomium more or less pronounced, often fused with peristomium and normally provided with numerous tentacles. Jaws usually absent. Tentacles usually present; grooved or cylindrical, papillose or smooth. Dorsal branchiae often present, usually paired, on one to four anterior segments. Dorsal branchiae filiform, pennate, dichotomous, arborescent, foliaceous, rosettelike, or lamellate. Secondary, parapodial branchiae only exceptionally present. Parapodia biramous, usually more or less reduced, often wartlike. Notopodia and neuropodia separated. Dorsal bristles usually present. First pair of notopodia sometimes with bristles

specialized as forward-pointing paleae. Neuropodia usually with chaetae, neurochaetae avicular, acicular, or pectinate uncini. Pygidium with or without appendages. Most species build tubes and have ventral glandular shields.

The order includes five families: Pectinariidae, Ampharetidae, Alvinellidae, Trichobranchidae, Terebellidae.

PECTINARIIDAE

Body short with a restricted and species specific number of segments. Posterior segments reduced and fused, forming a distinct scaphe. Prostomium not pronounced, fused with peristomium. Upper lip inconspicuous. Tentacles numerous, short, smooth, and grooved; not retractable into mouth. No jaws. Tentacular membrane broad and thin, arising behind tentacles. Behind tentacular membrane a number of stout paleae arising from flattened anterior part of dorsum, latter bordered posteriorly by a dorsal brim. Dorsal branchiae usually present, lamellate and inserted dorsolaterally, on segments IV and V. Branchial segments achaetous. Anterior segments with paired ventral glandular fields and a small central shield. Scaphe achaetous, dorsally concave. Axis of scaphe at an angle to the main axis, scaphe pointing more or less ventrally. Dorsal bristles from segment VI on. Neuropodia with avicular or pectinate uncini present in a number of segments. Base of scaphe with a number of lateral acicular hooks.

The family includes two genera: *Pectinaria*, *Petta*.

AMPHARETIDAE

Body usually with a restricted number of segments, forming two distinct regions: a thorax with dorsal bristles and an abdomen without dorsal bristles. Prostomium pronounced, often with longitudinal folds. Tentacles usually present, and typically retractable into mouth, smooth or papillose. Exceptionally tentacles replaced by a pair of irretractable palps, or absent. Tentacles usually numerous, but sometimes only one or a few large tentacles present. Upper lip covered by prostomium. Chitinous jaw elements only most exceptionally present. Segments I and II achaetous, often reduced and telescoped into the following segments. Branchiae exceptionally lacking. Segments III-VI may each bear a pair of branchiae, the total number of branchiae varying from 1 to 4 pairs. Branchiae may superficially

be arranged in transverse rows on the dorsum. Branchiae usually simple and tapering appendages, but sometimes foliaceous or with papillae or lamellae. Paleae very fine to moderately stout, may be present on segment III. Notochaetae from segment IV, V, VI, or VII and throughout thorax. Segments III-VI with or without neurochaetae. Neuropodia with pectinate uncini from segment VII and throughout body. Pygidium with or without appendages. The family includes three subfamilies: Ampharetinae, Uschakovinae, Melinninae.

AMPHARETINAE

Buccal tentacles either smooth and grooved or papillose, only exceptionally absent. Chitinous jaw elements exceptionally present. Paleae present or absent. No postbranchial hooks. Segments III-VI without neurochaetae. Neuropodial uncini start on segment VII. Uncini with one or more rows of teeth. Few or many (8-60) abdominal segments.

The subfamily is here divided into eight tribi plus twenty genera with uncertain tribal affinities. The character states of the genera are shown in table 1.

AMPHARETINI trib. n.

Tentacles papillose. Paleae present.

The tribus includes six genera: *Ampharete*, *Parampharete*, *Pterampharete*, *Sabellides*, *Asabellides*, *Neosabellides*.

AMPHICTEINI trib. n.

Tentacles smooth. A pair of glandular ridges on prostomium. Paleae present.

The tribus includes eight genera: *Amphicteis*, *Jugamphicteis*, *Phylamphicteis*, *Paramphicteis*, *Ecamphicteis*, *Hypania*, *Hypaniola*, *Hobsonia*.

MELINNAMPHARETINI trib. n.

Tentacles smooth. Paleae present. A narrow dorsal ridge in one of the anterior thoracic segments.

The tribus includes two genera: *Melinnampharete* (including subgenera), *Neosamytha*.

AMAGINI trib. n.

Tentacles smooth. Prostomium usually with a pair of more or less developed frontal ridges. Paleae present or absent. Abdominal notopodial rudiments usually present.

The tribus includes eight genera: *Amage*, *Mexamage*, *Grubianella*, *Emaga*, *Egamella*, *Amagopsis*, *Paramage*, *Samythopsis*.

SAMYTHINI trib. n.

Tentacles smooth. No glandular ridges on prostomium. Three or four pairs of cirriform branchiae. No paleae.

The tribus includes six genera: *Samytha*, *Samythella*, *Eusamytha*, *Amythas*, *Decemunciger*, *Alkmaria*.

LYSIPPINI trib. n.

Tentacles smooth. No glandular ridges on prostomium. Paleae present. The tribus includes two genera: *Lysippe*, *Pterolysippe*.

AUCHENOPLACINI trib. n.

Tentacles smooth. Two pairs of cirriform branchiae. No paleae. Long uncinigerous tori present in anterior part of thorax.

The tribus includes two genera: *Auchenoplax*, *Melinnoides*.

SOSANINI trib. n.

Tentacles smooth. Paleae present. One of the posterior thoracic segment with elevated notopodia, often with specialized notochaetae. The tribus includes six genera: *Sosane*, *Sosanopsis*, *Sosanides*, *Sosanelia*, *Anobothrus*, *Anobothrella*.

Genera of the Ampharetinae with uncertain tribal affinities:

Ampharana, *Amphisamytha*, *Amythasides*, *Eclysippe*, *Endecamera*, *Glyphanostomum*, *Gnathampharete*, *Lysippides*, *Mugga*, *Muggoides*, *Neopaiwa*, *Noanelia*, *Pabits*, *Paiwa*, *Phyllampharete*, *Phyllocomus*, *Pseudamphicteis*, *Schistocomus*, *Wedellia*, *Ymerana*.

USCHAKOVINAE subfam. n.

Terebellomorph, and probably ampharetid, polychaetes with long tentacles that cannot be withdrawn into the buccal cavity. A short thorax with notochaetae, but without neurochaetae. Abdomen with long

segments lacking notochaetae, but with uncini in neuropodia. Uncini with reduced rostrum and subrostrum.

Nominate and only genus: *Uschakovius* Laubier, 1973.

MELINNINAE

Buccal tentacles of one or two types, usually smooth with a groove; if of two types, small papillae may be present. Usually several tentacles, sometimes only one or a few large tentacles. Tentacular base exceptionally prolonged. No paleae. Branchiae simple or lamellate. One or two pairs of stout hooks may be present behind the branchiae. Small acicular neurochaetae in segments III, IV, and often also V and VI. Short neuropodial uncini start on segment VIII. Thoracic uncini with a single row of teeth, abdominal uncini with one or more rows of teeth. Abdominal segments numerous (20-90).

The subfamily includes seven valid genera: *Amelinna*, *Isolda*, *Melinantipoda*, *Melinna*, *Melinnopsides*, *Melinnopsis*, *Moyanus*.

ALVINELLIDAE

Moderately long and often rather stout worms with short segments. Prostomium reduced. Tentacles smooth, can be retracted into mouth. Four pairs of pennate dorsal branchiae. Secondary notopodial branchiae may be present. Notopodia with bristles extending throughout body. Specialized notochaetae present in one anterior segment. Neurochaetae breviavicular. Pygidium without appendages.

The family includes two genera: *Alvinella*, *Paralvinella*.

TRICHOBRANCHIDAE

Body long, divided into two regions: thorax with notochaetae and uncini, and abdomen with uncini only. Prostomium small, more or less fused with peristomium. Tentacular lobe folded, with numerous grooved tentacles that cannot be retracted into mouth. No jaws. Eyespots present or absent. One or more anterior segments achaetous. Two to four pair of branchiae, or a single (fused) middorsal branchia. Branchiae smooth, pennate, ringed, ridged, rosettelike or

Table 1. Character states of the genera of the ampharetid subfamily Ampharetinae. 1. Glandular ridges on prostomium - present (P) or absent (A); 2. Tetaclles - papillose (P), smooth (S), or absent (A); 3. Special dorsal features - dorsal ridges (R), elevated notopodia (E), dorsal fan-shaped notopodia (F), or none (N); 4. Paleae - present (P) or absent (A); 5. Rudimental notopodia in abdomen - present (P) or absent (A); 6. Number of branchial pairs; 7. number of thoracic uncinigerous segments.

Genus	1. ridg.	2. tent.	3. dorsal	4. paleae	5. rud.not.	6. #bran.	7. #thor.
<i>Alkmaria</i>	A	S	N	A	A	3	13
<i>Amage</i>	P	S	N	A	P	4	11
<i>Amagopsis</i>	P?	S	N	P	P	4	11
<i>Ampharana</i>	A	S	N	A	A	3	11
<i>Ampharete</i>	A	P	N(F)	P	A	4	12
<i>Amphicteis</i>	P	S	N	P	P	4	14
<i>Amphisamytha</i>	A	S	N	A	P	4	14
<i>Amythas</i>	A	S	N	A	A	3	14
<i>Amythasides</i>	A	S	N	P	A	3	11
<i>Anobothrella</i>	A?	S	E	P	?	4	12
<i>Anobothrus</i>	A	S	E,R	P	P	4	12
<i>Asabellides</i>	A	P	N	A	P	4	12
<i>Auchenoplax</i>	A	S	N	A	?	2	12
<i>Decemunciger</i>	A	S	N	A	A	4	10
<i>Ecamphicteis</i>	A	S	N	P	A	2	14
<i>Eclysippe</i>	A	S	N	P	A	3-4	12
<i>Egamella</i>	A	S	N	A	P	2	9
<i>Emaga</i>	?	S	N	A	?	0	11
<i>Endecamera</i>	A	S	N	P	A	4	11
<i>Eusamytha</i>	A	S	N	A	A	3	12
<i>Glyphanostomum</i>	A	S	N	A	A	3	11
<i>Gnathampharete</i>	A	A	N	P	?	4	12
<i>Grubianella</i>	P	S	N	A	A	4	11
<i>Hobsonia</i>	P?	S	N	P	P	4	14
<i>Hypania</i>	P	S	N	P	P	4	13
<i>Hypaniola</i>	?	S	N	P	?	4	14
<i>Jugamphicteis</i>	P	S	F	P	A?	4	14
<i>Lysippe</i>	A	S	N	P	P	4	13
<i>Lysippides</i>	A	S	N	P	P	4	14
<i>Melinnampharete</i>	A	S	R	P	A	3	?
<i>Melinnoides</i>	A	S	N	A	A	2	12
<i>Mexamage</i>	P	S	N	A	?	4	10
<i>Mugga</i>	A	S	E	P	A	3	9
<i>Muggoides</i>	A	S	E	A	A	3	10
<i>Neopaiwa</i>	A	S	N	A	P	3	14
<i>Neosabellides</i>	A	P	N	A	P	3	12
<i>Neosamytha</i>	A	S	R	P	A	3	12
<i>Noanelia</i>	A	S	N	A	A	4	12
<i>Pabits</i>	A	S	N	A	P	3	12
<i>Paiwa</i>	A	S	N	P	P	4	14
<i>Paramage</i>	A	S	N	A	A	4	11
<i>Parampharete</i>	A	P	N	P	A	3	12
<i>Paramphicteis</i>	P	S	N	A	P	4	14
<i>Phyllampharete</i>	A	S	N	A	P	4	14
<i>Phyllamphicteis</i>	A	S	N	P	A	4	14
<i>Phyllocomus</i>	A	S	N	A	P	4	12
<i>Pseudamphicteis</i>	P	P,S	N	P	P?	2?	14
<i>Pterampharete</i>	A	P	N	P	A	4	11
<i>Pterolysippe</i>	A	S	N	P	?	4	13
<i>Sabellides</i>	A	P	N	P(A)	A	4	11
<i>Samytha</i>	A	S	N	A	P	3	14
<i>Samythella</i>	A	S	N	A	A	3	12
<i>Samythopsis</i>	A	S	N	A	P	3	14
<i>Schistocomus</i>	A	S	N	P	P	4	12
<i>Sosane</i>	A	S	E	P	P	4	12
<i>Sosanelia</i>	A	S	E	A	A	3	13
<i>Sosanides</i>	A	S	E	P	A	4	12
<i>Sosanopsis</i>	A	S	E	A	P	4	12
<i>Wedellia</i>	?	S	N	A	?	3	15
<i>Ymerana</i>	A	S	F	A	A	3	11

lamellate. No ventral shields Pygidium smooth, lobed or with small cirri. Notochaetae capillary, smooth and brimmed. Thoracic uncini acicular or manubrioavicular, abdominal uncini breviavicular. The family is here divided into three tribi:

TRICHOBRANCHINI trib. n.

Two or three pairs of cirriform branchiae.

The tribus includes two genera: *Trichobranthus*, *Artacamella*.

TEREBELLIDINI trib. n.

Branchiae fused on mid-dorsum, cirriform or lamellate.

The tribus includes two genera: *Terebellides*, *Unobranthus*.

OCTOBRANCHINI trib. n.

Four pairs of branchiae, cirriform, lanceolate or rosettelike.

The tribus includes two genera: *Octobranthus*, *Novobranthus*.

TEREBELLIDAE

Body long and vermiform, usually divided into two recognizeable parts: A thorax with and an abdomen without dorsal bristles. Exceptionally dorsal bristles extend throughout body or may be completely lacking. Ventral uncini usually present in both thorax and abdomen, exceptionally completely lacking. Prostomium small, more or less fused with peristomium, with simple or folded tentacular lobes with numerous smooth tentacles. Tentacles normally grooved, in some genera also cylindrical ones present; tentacles cannot be pulled back into mouth. Between tentacles and mouth a more or less developed upper lip. Segment I achaetous, exceptionally forming a ventral proboscis. Notopodia with bristles usually from segment II, III, or IV. Dorsal branchiae on 0-3 anterior segments; branchiae dichotomous, arborescent or cirriform. Secondary notopodial branchiae only exceptionally present. Thorax often with glandular ventral shields. Pygidium usually smooth, lobed or bearing small papillae, exceptionally with cirri. Notochaetae present in most species, capillary, usually brimmed, smooth or denticulate. Uncini typically breviavicular, exceptionally opisthavicular, pectinate, acicular, or lacking.

The family includes four subfamilies: Artacaminae, Amphitritinae, Thelepodinae, Polycirrinae.

ARTACAMINAE

Peristomium ventrally forming a protrusive proboscis. Tentacular lobe simple. Branchiae each consisting of a number of cirriform filaments. Ventral shields more or less developed. Bristles smooth. Uncini avicular, in single rows.

The subfamily includes one genus: *Artacama*.

AMPHITRITINAE

Tentacular lobe simple, with or without eyespots. Branchiae, if present, usually dichotomous or arborescent, exceptionally secondarily filiform or with stems reduced and giving an appearance of free filaments. Ventral shields well developed, notochaetae subdistally smooth or denticulate. Uncini usually breviavicular, exceptionally opisthavicular or brevipectinate; in double rows (exceptionally fused into one row of alternately orientated uncini) in a number of posterior thoracic segments.

The subfamily is here divided into six tribi, plus twelve genera with uncertain tribal affinities. The character states of the genera are shown in table 2.

AMPHITRITINI trib. n.

Branchiae dichotomous, sometimes with strongly reduced stems, or absent. Lateral lobes present. Nephridia free or unknown. Notochaetae subdistally serrate. Neurochaetae breviavicular, sometimes with a subrostral appendix.

The tribus includes six genera: *Amphitrite*, *Paramphitrite*, *Neoamphitrite*, *Lanassa*, *Bathya*, *Leaena*.

PISTINI trib. n.

Branchiae dichotomous, arborescent or secondarily cirriform. Lateral lobes present. Nephridia free or unknown. Notochaetae smooth. Neurochaetae breviavicular or opisthavicular, sometimes with a subrostral appendix.

The tribus includes eight genera: *Pista*, *Betapista*, *Eupistella*, *Opisthopista*, *Axionice*, *Paraxionice*, *Stschapovella*, *Scionella*,

TEREBELLINI trib. n.

Branchiae dichotomous or absent. No lateral lobes. Nephridia fused

or unknown. Notochaetae subdistally serrate. Uncini breviavicular. The tribus includes four genera: *Terebella*, *Terebellobranchia*, *Ramex*, *Baffinia*.

PROCLEINI trib. n.

No branchiae. Lateral lobes present. Nephridia free or unknown. Notochaetae of two types, subdistally serrate ones, and coarsely denticulate ones. Uncini breviavicular. The tribus includes two genera: *Proclea*, *Phisidia*.

NICOLEINI trib. n.

Branchiae dichotomous. No lateral lobes. Nephridia free or unknown. Notochaetae smooth. Uncini breviavicular. The tribus includes four genera: *Nicolea*, *Eupolymnia*, *Polymniella*, *Reteterebella*.

LANICINI trib. n.

Branchiae dichotomous. Lateral lobes present. Nephridia fused or unknown. Notochaetae smooth. Uncini breviavicular. The tribus includes three genera: *Lanice*, *Lanicides*, *Paralanice*.

Genera of the Amphitritinae with uncertain tribal affinities: *Amphitritides*, *Colymmatops*, *Hadrachaeta*, *Laphania*, *Loimia*, *Longicarpus*, *Naneva*, *Neoleprea*, *Scionides*, *Spinospaera*, *Spiroverma*, *Thelepides*.

THELEPODINAE

Thorax and abdomen usually not discernible. Tentacular lobes simple. Eyespots present or absent. Branchiae usually present and each consisting of number of simple filaments typically arranged in transverse rows. Ventral shields well developed. Notochaetae smooth, Uncini breviavicular, usually with rounded subrostral process, in simple, but sometimes irregularly folded, rows.

The subfamily includes nine genera: *Decathelepus*, *Euthelepus*, *Parathelepus*, *Pseudostreblosoma*, *Pseudothelepus*, *Rhinothelepus*, *Streblosoma*, *Telothelepus*, *Thelepus*.

Table 2. Character states of the genera of the terrebellid subfamily Amphitritinae. The columns show the following characters: 1. Nephridia - free (F) or fused (C); 2. Branchiae - number of pairs and type - filiform (F), dichotomous (D), Arborescent (T), or absent (A); 3. Type of uncini - only short avicular or pectinate (S) or also long-shafted opsithoavicular (L); 4. Notochaetae - serrate (T) or smooth (S); 5. Lateral lobes - present (P) or absent (A); 6. Number of notopodial segments.

Genus	1. nephhr.	2. branch.	3. unc.	4. not.	5. lat.	6. #notop.
<i>Amphitrite</i>	F	2-3 D-F	S	T	P	17-25
<i>Amphitritides</i>	?	1 D	S	T	A	17-30
<i>Axionice</i>	?	1 D	S	S	P	15-17
<i>Baffinia</i>	?	A	S	T	A	>
<i>Bathya</i>	?	A	S	S	P	?
<i>Betapista</i>	?	3 T	L	S	P	17
<i>Collymmatops</i>	?	3 ?	S	T	P	13-14
<i>Eupistella</i>	?	1-2 C	L	S	P	17
<i>Eupolymnia</i>	F	3 D	S	S	P	17
<i>Hadrachaeta</i>	?	3 F	S	T	A	17
<i>Lanassa</i>	F	A	S	?	(P)	11-14-27?
<i>Lanice</i>	C	3 D	S	S	P	17
<i>Lanicides</i>	C	2 D	S	L	P	17
<i>Laphania</i>	F	A	S	L	P	16
<i>Leaena</i>	F	A	S	S	P	10-17-31?
<i>Loimia</i>	C	3 D	S	S	P	17
<i>Longicarpus</i>	?	3 D	L	T	(P)	27
<i>Naneva</i>	?	2 D	S	S	A	25
<i>Neoamphitrite</i>	F	3 D	S	T	A	17-38
<i>Nicolea</i>	?	2 D	S	S	A	15-40
<i>Opisthopista</i>	?	2 ?	L	S	P	16
<i>Paralanice</i>	?	3 D	S	S	P	17
<i>Paramphitrite</i>	?	2 D-F	S	T	P	13
<i>Paraxionice</i>	?	1 D	S	S	P	16
<i>Phisidia</i>	F	A	S	T	A	13-14
<i>Pista</i>	F	1-2 D-T	L	S	P	16-24
<i>Polymniella</i>	?	3 D	S	T	(A)	22-?
<i>Proclea</i>	F	A	S	T	P	16-23
<i>Ramex</i>	?	1 D	S	S	A	13
<i>Reteterebella</i>	?	3 D	S	S	(A)	16
<i>Scionella</i>	?	1 T	S	S	P	17
<i>Scionides</i>	?	3 D	S	S	P	17
<i>Sphinosphaera</i>	F	A	S	T	A	23-40
<i>Spiroverma</i>	?	1 F	S	T	(P)	17
<i>Stschapovella</i>	?	A	S	T	P	16
<i>Terebella</i>	C	2-3 D	S	T	A	17->
<i>Terebellobranchia</i>	?	3 D	S	T	A	19->
<i>Thelepides</i>	?	3 F	S	S	(P)	17

POLYCIRRINAE

Tentacular lobe conspicuous, simple or lobed. Often two types of tentacles present. No dorsal branchiae, secondary notopodial branchiae exceptionally present. No eyespots. No lateral lobes on the anterior segments. Ventral shields paired, unpaired, or reduced. Notochaetae, if present, smooth or denticulate. Neurochaetae, if present, breviavicular, brevipectinate or acicular, always in simple rows.

The subfamily is here divided into three tribes plus one genus with uncertain tribal affinities:

POLYCIRRINI trib. n.

Notochaetae present or absent. Neurochaetae breviavicular or brevipectinate.

The tribus includes two genera: *Polycirrus*, *Biremis*.

AMAEANINI trib. n.

Notochaetae present. Neurochaetae manubriavicular or acicular, restricted to abdomen.

The tribus includes two genera: *Amaeana*, *Litancyra*.

LYSILLINI trib. n.

Notochaetae present or absent. No neurochaetae.

The tribus includes two genera: *Lysilla*, *Hauchiella*.

Genus of the Polycirrinae with uncertain tribal affinities: *Enoplobranchus*.

A CATALOGUE OF THE POLYCHAETA TEREBELLOMORPHA

The families are entered in the following more or less traditional order: Pectinariidae, Ampharetidae, Alvinellidae, Trichobranchidae, and Terebellidae. Within the families subfamilies, if present, are entered in traditional order. Within each family or subfamily the genera, valid or invalid, are entered alphabetically. The valid species are listed alphabetically under their respective genera, in modern and in a few cases new combinations. The invalid species and old combinations follow alphabetically after the valid species.

If subgenera are erected in a genus, these are listed under the genus entry, and their species can be identified by the subgeneric name in brackets between the generic and specific names. Invalid genera and species are written in brackets, and if possible with reference to corresponding valid taxa.

The synonymies listed are original descriptions only, misidentifications are not accounted for. The references listed under families, subfamilies, genera, and species are works treating or commenting the systematics, morphology, anatomy or biology of the taxon in question - under its valid name or one of its synonyms, in chronological order of the first paper quoted of each author. Some of these papers contain crucial emendations of the descriptions, lists of synonymy, or good figures that often are lacking in the original descriptions.

Original synonyms are not repeated, and pure geographical records are omitted to save space. The latter are nevertheless used in computing the geographical range of the taxa, and these papers are listed in the bibliography. Under each genus the type species is given, and under each species the type locality. The geographical distribution of each taxon is given by the numbers (1-29) of the marine zoogeographical regions (cfr. map, fig. 16). The regions of the continental shelves are defined according to Briggs (1974), in the tradition from Ekman (1935, 1953) and are:

- | | |
|------------------------------|-----------------------------|
| (1) Arctic | (12) Mediterranean-Atlantic |
| (2) Eastern Pacific boreal | (13) Eastern Atlantic |
| (3) Californian | (14) South African |
| (4) Eastern Pacific | (15) Indo-Pacific |
| (5) Western South American | (16) Japan |
| (6) Southern South American | (17) Western Pacific Boreal |
| (7) Eastern South American | (18) South Australian |
| (8) Western Atlantic | (19) Tasmanian |
| (9) Carolinean | (20) Northern New Zealand |
| (10) Western Atlantic boreal | (21) Southern New Zealand |
| (11) Eastern Atlantic boreal | (22) Antarctic |

The bathymetric distribution of many species is insufficiently known, and it has in practice been difficult to delimit the deep-sea species. The result is that the slope records usually are grouped with the shelf fauna, but records from below ca. 1000 m have been interpreted as deep sea.

The deep-sea records are grouped into the following large deep-sea regions:

- | | |
|-------------------------|--------------------------|
| (23) Deep Indian Sea | (27) Deep South Atlantic |
| (24) Deep South Pacific | (28) Deep North Atlantic |
| (25) Deep North Pacific | (29) Deep Polar Sea |
| (26) Deep Sub-Antarctic | |

In view of the discussion of characters, evolution and taxonomic principles the changes undertaken in the present work are not profound nor many. Often I just have to repeat the taxa listed by earlier cataloguers, as tidying up within the large genera (as *Pista* and *Terebellides*) must await revision. I am fully aware that such revisions are being undertaken by specialists, and I see no reason to anticipate these works by forwarding mere guesswork. Most of the synonyms of the older taxa are according to Hesse (1917) and Hartman (1959, 1965a).

Order TEREBELLOMORPHA

Comprising families PECTINARIIDAE, AMPHARETIDAE, ALVINELLIDAE, TRICHOBRANCHIDAE and TEREPELLIDAE. Number of recent genera described 211 whereof 135 presently considered valid. Number of valid recent species 690. Hartmann-Schröder 1971, Fauchald 1977, Holthe 1986a.

FOSSIL TAXA:

The following recent species have been identified as fossils:

- Pectinaria (Amphictene) auricoma* (O.F. Müller, 1776)
- Pectinaria (Pectinaria) belgica* (Pallas, 1766)
- Lanice conchilega* (Pallas, 1766)
- Pista cristata* (O.F. Müller, 1776)
- Terebella lapidaria* Linnaeus, 1767
- Streblosoma bairdi* (Malmgren, 1866)

The following fossil taxa have with more or less certainty been interpreted as terebellomorphs:

- Arthropycus* Hall, 1852
- Arthropycus alleghanensis* (Harlan, 1831) as *Fucoides*

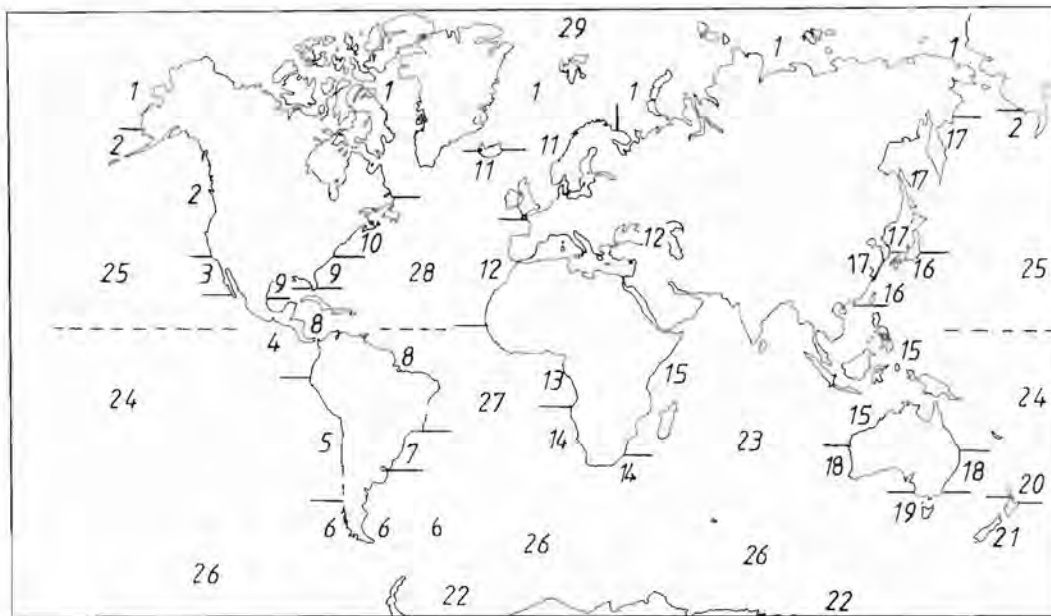


Fig. 16. The marine zoogeographical regions as defined by Briggs (1974) (1-22), and the deep sea regions defined for the present work (23-29).

- Cryptosiphon* Prantl, 1948
Cryptosiphon terebelloides Prantl, 1948
- Granularia* Pomel, 1849
- Harlania* Goppert, 1852
- Lepidenteron* Fritsch, 1878
Lepidenteron longissimum Fritsch, 1878
- Paraterebella* Howell, 1955
Paraterebella scotti (Howell, 1953) as *Terebellopsis*
- Proterebella* Howell, 1953
Proterebella permiana Howell, 1953
- Psammosiphon* Vine, 1882
Psammosiphon amplexus Vine, 1882
- Scalarituba* Weller, 1899
Scalarituba missouriensis Weller, 1899
- Scolecoderma* Salter, 1855
Scolecoderma antiquissima Salter, 1855
- Terebella cancellata* Bather, 1911
Terebella lewesiensis Davies, 1879
Terebella lutensis Bather, 1911
- Terebellina* Ulrich, 1910
Terebellina palachei Ulrich, 1910
- Terebellites* Howell, 1943
Terebellites franklini Howell, 1943
- Terebelloides* Desio, 1940
- Terebellolites* Desio, 1940
Terebellolites fezzanensis Desio, 1940
- Terebellopsis* Leymerie, 1844
(*Terebellopsis* Howell, 1953, see *Paraterebella*)
- Tithaia* Webby, 1958
Tithaia corrugata Webby, 1958

RECENT TAXA:

PECTINARIIDAE Quatrefages, 1865

synonym: AMPHICTENIDAE Grube, 1851 (according to Opinion 1225 of the International Commission on Zoological Nomenclature (1982), not to be given priority over Pectinariidae). Malmgren 1866, Gravier 1905, McIntosh 1922, Fauvel 1927, Lindroth 1941, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Fauchald & Jumars 1979, Holthe 1986a. Number of genera described 9 whereof 2 presently considered valid. Number of valid species 46.

(*Amphictene* Savigny, 1818, see subgenera of *Pectinaria*)

(type: *Amphitrite auricoma* O.F. Müller, 1776)

(*Amphictene aegyptica* Savigny, 1818, see *Pectinaria aegyptica*)

(*Ariapithes* Kinberg, 1867, indeterminate)

(type: *Ariapithes pallidus* Kinberg, 1867)

(*Ariapithes pallidus* Kinberg, 1867, indeterminate)

(*Cistena* Leach, 1816, see *Pectinaria*)

(*Cistena pallasii* Leach, 1816, see *Pectinaria belgica*)

(*Cistenides* Malmgren, 1866, see subgenera of *Pectinaria*)

(type: *Sabella granulata* Linnaeus, 1767)

(*Cistenides gouldii* Verrill, 1873, see *Pectinaria gouldii*)

(*Cistenides hyperborea* Malmgren, 1866, see *Pectinaria hyperborea*)

(*Labiaria* Sveshnikov, 1959, larval forms, no species named)

(*Lagis* Malmgren, 1866, see subgenera of *Pectinaria*)

(type: *Lagis koreni* Malmgren, 1866)

(*Lagis koreni* Malmgren, 1866, see *Pectinaria koreni*)

Pectinaria Savigny, 1818,

type: *Nereis cylindraria belgica* Pallas, 1766,

synonyms: *Amphictene* Savigny, 1818; *Cistenides* Malmgren, 1866; *Lagis* Malmgren, 1866; *Cistena* Leach, 1816 (according to Opinion 1225 of the International Commission on Zoological Nomenclature (1982), not to be given priority over *Pectinaria*).

subgenera: *Amphictene* Savigny, 1818; *Cistenides* Malmgren, 1866; *Lagis* Malmgren, 1866; *Pectinaria* Savigny, 1818.

Risso 1826, Schmarda 1861, Malmgren, 1866, Wollebæk 1912, Hesse 1917, McIntosh 1922, Fauvel 1927, Nilsson 1928, Thorson 1946, Ušakov 1955, Day 1967, Fauchald 1977a, Holthe 1986a. Number of valid species: 42. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21).

Pectinaria (Lagis) abbranchiata Fauvel, 1933.
Type locality Cochin Backwaters. Distribution (15).

Pectinaria (Cistenides) aegyptica (Savigny, 1818) as *Amphictene aegyptica*.
Nilsson 1928, Imajima & Hartman 1964. Type locality Bay of Suez.
Distribution (15, 16).

Pectinaria (Pectinaria) antipoda Schmarda, 1861.
Nilsson 1928, Fauvel 1933, Wesenberg-Lund 1949, Rullier 1972.
Type locality New South Wales. Distribution (15, 18, 19) 0-60m.

Pectinaria (Amphictene) auricoma (O.F. Müller, 1776) as *Amphitrite auricoma*.
Malmgren 1866, Wollebæk 1912, Hessle 1917, Fauvel 1927, Nilsson 1928, McIntosh 1922, Thorson 1946, Ušakov 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Denmark. Distribution (2, 10, 11, 12, 13) 0-500m.

Pectinaria (Amphictene) auricoma mediterranea Nilsson, 1928.

Pectinaria (Lagis) australis Ehlers, 1905.
Nilsson 1928, Estcourt 1967. Type locality Lyttelton, New Zealand.
Distribution (15, 20, 21) shallow water.

Pectinaria (Pectinaria) belgica (Pallas, 1766) as *Nereis cylindria belgica*.
Malmgren 1866, Wollebæk 1912, Hessle 1917, Fauvel 1927, Nilsson 1928, McIntosh 1922, Thorson 1946, Ušakov 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Belgium. Distribution (2, 3, 11, 12) upper sublittoral to 500m.

Pectinaria (Lagis) bocki Hessle, 1917.
Hessle 1917, Nilsson 1928, Okuda 1934, 1936, Imajima & Hartman 1964. Type locality Japan. Distribution (16, 17) shallow water.

Pectinaria (Cistenides) brevicoma Johnson, 1901.
Moore 1923, Hartman 1941, Ušakov 1955. Type locality Alaska.
Distribution (2, 3, 17) littoral to 80m.

Pectinaria (Pectinaria) brevispinis Grube, 1878.
Nilsson 1928, Caullery 1944. Type locality Philippines. Distribution (15).

Pectinaria (Pectinaria) californiensis Hartman, 1941.
Hartman 1969, Nichols 1974, Fauchald & Jumars 1979. Type locality California. Distribution (2, 3) littoral to 320m.
Pectinaria (Pectinaria) californiensis newportensis Hartman, 1941.

Pectinaria (Amphictene) capensis (Pallas, 1766) as *Nereis cylindraria capensis*.

Synonym: *Sabella indica* Linnaeus, 1788.

Gravier 1905a, Nilsson 1928, Day 1955, 1963a, 1967. Type locality South Africa. Distribution (14, 15) shallow water.

Pectinaria (Lagis) castanea Risso, 1826 questionably *Pectinaria neapolitana*.

Type locality Mediterranean. Distribution (12) littoral.

Pectinaria (Amphictene) catharinensis Grube 1871.

Nilsson 1928. Type locality Brazil. Distribution (8), bathymetric distribution unknown.

Pectinaria (Cistenides) chilensis Nilsson, 1928.

Hartman 1941. Type locality Chile. Distribution (5) 10-40 m.

Pectinaria (Pectinaria) clava Grube, 1878.

Nilsson 1928. Type locality Philippines. Distribution (15).

Pectinaria (Pectinaria) conchilega Grube, 1878.

Nilsson 1928, Wiktor 1980. Type locality Philippines. Distribution (15).

Pectinaria (Amphictene) crassa Grube, 1870.

Nilsson 1928, Pruvot 1930, Fauvel 1933, Rullier 1972. Type locality New Caledonia. Distribution (15) to 600m.

Pectinaria (Pectinaria) dimai Zaks, 1933.

Ušakov 1955. Type locality North Japan Sea. Distribution (17).

Pectinaria (Cistenides) ehlersi Hesse, 1917.

Nilsson 1928, Hartmann-Schröder 1965b, Hartman 1966c. Type locality Patagonia. Distribution (5, 6) 11-300m.

Pectinaria (Cistenides) gouldii (Verrill, 1873) as *Cistenides gouldii*.

Andrews 1891, Nilsson 1928, Hartman 1941, Gordon 1966, Tweedel 1966, Long 1973, Whitlatch 1974, Fauchald & Jumars 1979. Type locality New England. Distribution (8, 9, 10) 0-15m.

Pectinaria (Cistenides) granulata (Linnaeus, 1767) as *Sabella granulata*.

Synonym: *Amphitrite eschrichtii* Rathke, 1843.

Malmgren 1866, Wollebæk 1912, Hesse 1917, Chamberlin 1920, Nilsson 1928, Berkeley & Berkeley 1942, Ušakov 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Northern Europe. Distribution (1,

2, 10, 11, 17) 2-250m.

Pectinaria (Amphictene) guatemalensis Nilsson, 1928.

Type locality Pacific coast of Guatemala. Distribution (4) bathymetric distribution unknown.

Pectinaria (Lagis) hupferi Nilsson, 1928.

Type locality Southwest Africa. Distribution (13, 14) bathymetric distribution unknown.

Pectinaria (Cistenides) hyperborea (Malmgren, 1866) as *Cistenides hyperborea*.

Levinsen 1886, Moore 1903, Wollebæk 1912, McIntosh 1915, Hessle 1917, Nilsson 1928, Annenkova 1929, Okuda 1937b, Wesenberg-Lund 1950a, Ušakov 1955, Imajima & Hartman 1964, Uchida 1968, Peer 1970, Hartmann-Schröder 1971, Holthe 1986a. Type locality Spitsbergen and Greenland. Distribution (1, 2, 10, 11, 16) shallow to 200m.

Pectinaria (Amphictene) japonica Nilsson, 1928.

Okuda 1934d, Ušakov 1955, Imajima & Hartman 1964. Type locality Japan. Distribution (17).

Pectinaria (Lagis) koreni (Malmgren, 1866) as *Lagis koreni*.

Malmgren 1867, Marenzeller 1874b, Brasil 1904, Wollebæk 1912, Watson 1914, 1920, 1928, Hessle 1917, McIntosh 1922, Dehorne 1925a,b, Nilsson 1909, 1925, 1928, Fauvel 1927, Wilson 1936, Thorson 1946, Wilcke 1952, Day 1963a, 1967, Hartmann-Schröder 1971, Vovelle 1973, Vovelle et al. 1973, Nichols 1977, Nicolaidou 1983, Holthe 1986a. Type locality Norway. Distribution (1, 11, 12, 13, 14) 0-500m.

Pectinaria (Lagis) koreni bocki Hessle, 1917. Ušakov 1955, Day 1967.

Pectinaria (Lagis) koreni cirrata Day, 1963.

Pectinaria (Pectinaria) leioscaptha Caullery, 1944.

Type locality Banda, Indian Ocean. Distribution (15) 9 -36m.

Pectinaria (Lagis ?) longispinis Grube, 1878.

Wiktor 1980. Type locality Philippines. Distribution (15).

Pectinaria (Pectinaria) meredithi Long, 1973.

Type locality Bahamas and Florida. Distribution (9) eulittoral to sublittoral.

Pectinaria (Amphictene) moorei Annenkova, 1929.

Ušakov 1955. Type locality Siberian east coast. Distribution (17) 130-160m.

- Pectinaria nana* Wesenberg-Lund, 1949 (subgenus uncertain).
Type locality Iranian Gulf. Distribution (15) 11m.
- Pectinaria (Lagis) neapolitana* Claparède, 1870.
Hessle 1917, Nilsson 1928, Day 1955, 1967. Type locality Mediterranean. Distribution (12, 14).
- Pectinaria (Cistenides) okudai* Imajima & Hartman, 1964.
Okuda 1938 (as *Pectinaria (Cistenides)* sp.). Type locality Japan. Distribution (16).
- Pectinaria (Pectinaria ?) panava* Willey, 1905.
Type locality Ceylon. Distribution (15).
- Pectinaria (Pectinaria) papillosa* Caullery, 1944.
Day 1951, 1967, Hutchings & Murray 1984. Type locality East India. Distribution (15) 47m.
- Pectinaria (Pectinaria) parvibranchis* Grube, 1878.
Nilsson 1928, Wiktor 1980. Type locality Philippines. Distribution (15).
- Pectinaria (Pectinaria) profunda* Caullery, 1944.
Type locality East India. Distribution (15) 310m.
- Pectinaria (Lagis) pseudokoreni* Day, 1955.
Type locality South Africa. Distribution (14) shallow water.
- Pectinaria (Cistenides) regalis* Verrill, 1901.
Hartman 1942, Long 1973.
Type locality Bermuda. Distribution (8, 9) 0-25m.
- Pectinaria (Cistenides) soldatovi* Annenkova, 1929.
Ušakov 1955. Type locality North Pacific Ocean. Distribution (16) 26-62m.
- Pectinaria (Amphictene) souriei* Fauvel, 1949.
Type locality Dakar. Distribution (12, 13) littoral.
- Pectinaria (Lagis) tenera* Hartmann-Schröder, 1959.
Type locality El Salvador. Distribution (4).
- (*Pectinaria malmgreni* Grube, 1870, see *Pectinaria koreni*)
(*Pectinaria nigrescens* Risso, 1826, indeterminate)
(*Pectinaria (Petta) pellucida* Ehlers, 1887, see *Petta pellucida*)
(*Pectinaria robusta* Levinsen, 1883, see *Pectinaria koreni*)

Petta Malmgren, 1866,
type: *Petta pusilla* Malmgren, 1866.
Wollebæk 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, Nilsson
1928, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number
of valid species 4. Distribution (1, 8, 11, 12, 13, 15, 26).

Petta assimilis McIntosh, 1885.
Hartman 1967. Type locality off Kerguelen. Distribution (26)
1800-2950m.

Petta pellucida (Ehlers, 1887) as *Pectinaria (Petta) pellucida*.
Type locality Bahamas. Distribution (8) 500m.

Petta pusilla Malmgren, 1866.
Hessle 1917, McIntosh 1922, Fauvel 1927, Nilsson 1928, Hartmann-
Schröder 1971, Vovelle 1979a, b, Holthe 1986a. Type locality
Swedish west coast. Distribution (1, 11, 12, 13) 15-200m.

Petta tenuis Caullery, 1944.
Type locality East India. Distribution (15) 275m.

(*Scalis* Grube, 1846, indeterminate)
(type: *Scalis minax* Grube, 1846)
(*Scalis minax* Grube, 1846, indeterminate)

AMPHARETIDAE Malmgren, 1866

Comprising subfamilies AMPHARETINAE, USCHAKOVINAE, and MELINNINAE.
Langerhans 1884, McIntosh 1885, 1922, Fauvel 1895b, 1897a, b, 1927,
Wollebæk 1912, Chamberlin 1919c, Lindroth 1941, Caullery 1944, Uša-
kov 1955, Day 1961, 1964, 1967, Hartmann-Schröder 1971, Fauchald
1977a, Fauchald & Jumars 1979, Holthe 1986a. Number of genera de-
scribed 85, whereof 68 are presently considered valid. Number of
valid species 214.

AMPHARETINAE Chamberlin, 1919

Day 1964, 1967, Hartmann-Schröder 1971, Holthe 1986a. Number of
genera described 70, whereof 60 are presently considered valid.
Number of valid species 171.

Alkmaria Horst, 1919,
type: *Alkmaria romijni* Horst, 1919,
synonym: *Microsamytha* Augener, 1928.
Day 1964, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a.
Number of valid species 1. Distribution (11).

Alkmaria romijni Horst, 1919.
Synonym: *Microsamytha ryckiana* Augener, 1928.
Wesenberg-Lund 1934, Thorson 1946, Hartmann-Schröder 1971, Amou-
reux & Elkaim 1972, Holthe 1986a. Type locality Holland. Distribu-
tion (11) shallow brackish water.

Amage Malmgren, 1866,
type: *Amage auricula* Malmgren, 1866.
Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Ušakov 1955, Day
1964, Hartmann-Schröder 1971, Fauchald 1972a, 1977a, Holthe 1986a.
Number of valid species 13. Distribution (1, 2, 3, 4, 6, 7, 8, 9,
10, 11, 12, 15, 16, 17, 22).

Amage adspersa (Grube, 1863) as *Sabellides adspersa*.
Langerhans 1884, Hessle 1917, Fauvel 1927. Type locality Medi-
terranean. Distribution (11, 12).

Amage anops (Johnson, 1901) as *Sabellides anops*.
Moore 1923, Ušakov 1955, Hartman 1969, Banse 1979. Type locality
Northeast Pacific. Distribution (2, 3) 120-410m.

Amage arieticornuta Moore, 1923.
Hartman 1969. Type locality California. Distribution (3, 25) 450-
2000m.

Amage asiaticus Ušakov, 1955.
Type locality North Pacific. Distribution (17).

Amage auricula Malmgren, 1866.
Marenzeller 1884, Wolllebæk 1912, Hessle 1917, McIntosh 1922, Hart-
man 1945, Wesenberg-Lund 1950a, Imajima & Hartman 1964, Hartmann-
Schröder 1971, Holthe 1986a. Type locality Swedish west coast.
Distribution (1, 9, 10, 11, 12, 15, 16) upper sublittoral to
depths exceeding 1000m.
Amage auricula sibogae Caullery, 1944.

Amage delus (Chamberlin, 1919) as *Sabellides delus*
Fauchald 1972a. Type locality Baja California. Distribution (25)
1050-1650m.

Amage gallasi Marion, 1875.

Hessle 1917, Fauvel 1927. Type locality Mediterranean. Distribution (11, 12).

Amage longibranchiata Hartman, 1960.

Hartman 1969. Type locality California. Distribution (3) 814m.

Amage perfecta Moore, 1923.

Hartman 1969. Type locality California. Distribution (3) 120-400m.

Amage scotica Clark, 1952.

Type locality Scottish west coast. Distribution (11) 168-230m.

Amage sculpta Ehlers, 1912.

Hessle 1917, Hartman 1966c, 1978. Type locality off Bouvet Island. Distribution (6, 22) 244-1080m.

Amage scutata Moore, 1923.

Hartman 1969, Fauchald 1972a. Type locality California. Distribution (3, 4) 75-1175m.

Amage tumida Ehlers, 1887.

Augener 1906, Hartman 1965b. Type locality Southern Florida. Distribution (3, 7, 8, 10) 200-625m.

(*Amage inhamata* Hoagland, 1919, see *Dodecaceria*, CIRRATULIDAE)

(*Amage pusilla* Verrill, 1873, see *Sabellides pusilla*)

Amagopsis Hlebovič, 1964,

type: *Amagopsis klugei* Hlebovič, 1964, monotypic.

Holthe 1986a. Number of valid species 2. Distribution (1, 2, 11, 25).

Amagopsis cirratus Kučeruk, 1976.

Type locality Gulf of Alaska (25). Distribution 5020-5700m.

Amagopsis klugei Hlebovič, 1964.

Holthe 1986a. Type locality Arctic Ocean. Distribution (1, 2, 11, 29) 600-1445m.

Ampharana Hartman, 1967,

type: *Ampharana antarctica* Hartman, 1967, monotypic.

Fauchald 1977a. Number of valid species 1. Distribution (26).

Ampharana antarctica Hartman, 1967.

Type locality Antarctic deep sea. Distribution (26) to 4813m.

Ampharete Malmgren, 1866,
type: *Amphicteis acutifrons* Grube, 1860,
synonym: *Branchiosabella* Claparède, 1863.
Fauvel 1896c, 1927, Wollebæk 1912, Hessle 1917, McIntosh 1922, Ušakov
1955, Day 1964, 1967, Hartmann-Schröder 1971, Fauchald 1977a, Holthe
1986. Number of valid species 23. Distribution (1, 2, 3, 4, 6, 8, 10,
11, 12, 13, 14, 15, 17, 21, 22, 25, 26, 28).

Ampharete acutifrons (Grube, 1860) as *Amphicteis acutifrons*.

Synonyms: *Amparete cirrata* Webster & Benedict, 1887,

Ampharete grubei Malmgren, 1866,

Ampharete intermedia Marion, 1875.

Fauvel 1896b, 1927, Wollebæk 1912, Hessle 1917, McIntosh 1922,
Thorson 1946, Wesenberg-Lund 1950a, Day 1961, 1967, Hartman 1969,
Hartmann-Schröder 1971, Banse 1979, Fauchald & Hancock 1981,
Claviere 1984, Holthe 1986a. Type locality Greenland. Distribution
(1, 2, 3, 10, 11, 12, 14, 17, 25) lower eulittoral to 2000m.

Ampharete agulhasensis (Day, 1961) as *Lysippe agulhasensis*.

Day 1967. Type locality South Africa. Distribution (14) 95m.

Ampharete baltica Eliason, 1955, as *Ampharete grubei baltica*.

Fournier & Pocklington 1984, Holthe 1986a. Type locality Western
Baltic. Distribution (1, 11) 5-77m.

Ampharete capensis (Day, 1961) as *Lysippe capensis*.

Day 1967. Type locality South Africa. Distribution (14) 15m.

Ampharete debroweri Jeldes & Lefevre, 1959.

Type locality West Africa. Distribution (13).

Ampharete eupalea Chamberlin, 1920.

Synonym: *Ampharete seribranchiata* Treadwell, 1926.

Type locality Alaska. Distribution (1) 16-18m.

Ampharete falcata Eliason, 1955.

Hartmann-Schröder 1971, Holthe 1986a. Type locality Swedish west
coast. Distribution (11) 30-90m.

Ampharete finmarchica (Sars, 1865) as *Amphicteis finmarchica*.

Synonyms: *Ampharete arctica* Malmgren, 1866.

Ampharete brevibranchiata Treadwell, 1926.

Levinsen 1886, Wollebæk 1912, Hessle 1917, Moore 1923, Okuda
1936b, Thorson 1946, Wesenberg-Lund 1950a, Ušakov 1955, Hartman
1956, 1965b, 1969, Imajima & Hartman 1964, Hartmann-Schröder
1971, Holthe 1986a. Type locality Norway. Distribution (1, 2, 3,
4, 6, 8, 10, 11, 17, 25, 28) upper sublittoral to depths exceeding
5000m.

Ampharete gagarae Ušakov, 1950 as *Ampharete arctica gagarae*.
Ušakov 1955, Banse 1979. Type locality Sea of Okhotsk. Distribution (2, 17) 200-664m.

Ampharete goesi Malmgren, 1866.
Wollebæk 1912, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Hartman 1969, Hartmann-Schröder 1971, Holthe 1986a. Type locality Spitsbergen. Distribution (1, 2, 3, 10, 17) 35-170m.
Ampharete goesi brazhnikovi Annenkova, 1929. Ušakov 1955, Banse 1979.

Ampharete homa Chamberlin, 1919.
Type locality California. Distribution (25) 1580m.

Ampharete johanseni Chamberlin, 1920.
Type locality Alaska. Distribution (2) 6m.

Ampharete kerguelensis McIntosh, 1885.
Hessle 1917, Augener 1926, Hartman 1966c, 1978, Day 1967.
Type locality off Kerguelen. Distribution (6, 21, 22, 26) 64-311m.

Ampharete labrops Hartman, 1961.
Hartman 1969, Banse 1979. Type locality California. Distribution (3) intertidal to 55m.

Ampharete lindstroemi Malmgren, 1867.
Hessle 1917, Ušakov 1955, Fournier & Pocklington 1984, Holthe 1986. Type locality Swedish west coast. Distribution (1, 11, 17) 8-400m.

Ampharete longipaleolata Ušakov, 1950.
Ušakov 1955. Type locality Sea of Okhotsk. Distribution (17) 65-443m.

Ampharete macrobranchia Caullery, 1944.
Type locality East India. Distribution (15) 216m.

Ampharete minuta Langerhans, 1881.
Type locality Madeira. Distribution (12).

Ampharete reducta Chamberlin, 1920.
Synonym: *Ampharete crassiseta* Annenkova, 1929.
Ušakov 1955. Type locality Alaska. Distribution (2, 17) 6-21m.

Ampharete setosa Verrill, 1873.
Type locality Connecticut. Distribution (10).

Ampharete sombreroiana McIntosh, 1885.
Type locality West Indies. Distribution (8) 720-865m.

Ampharete trilobata Webster & Benedict, 1887.
Type locality Maine. Distribution (10).

Ampharete vega (Wiren, 1883) as *Amphicteis vega*.
Levinsen 1884, Wollebæk 1912, Hessle 1917, Ušakov 1955, Holthe 1986. Type locality Bering Sea. Distribution (1) shallow water.

(*Ampharete arctica* Malmgren, 1866, see *Ampharete finmarchica*)
(*Ampharete brevibranchiata* Treadwell, 1926, see *Ampharete finmarchica*)
(*Ampharete cirrata* Webster & Benedict, 1887, see *Ampharete acutifrons*)
(*Ampharete crassiseta* Annenkova, 1929, see *Ampharete reducta*)
(*Ampharete gracilis* Malmgren, 1866, see *Anobothrus gracilis*)
(*Ampharete grubei* Malmgren, 1866, see *Ampharete acutifrons*)
(*Ampharete intermedia* Marion, 1875, see *Ampharete acutifrons*)
(*Ampharete patagonica* Kinberg, 1867, see *Anobothrus patagonicus*)
(*Ampharete seribranchiata* Treadwell, 1926, see *Ampharete eupalea*)

Amphicteis Grube, 1851,
type: *Amphitrite gunneri* Sars, 1835,
synonym: *Crossostoma* Gosse, 1855.
Grube 1860, Malmgren 1866, St Joseph 1894, Fauvel 1896c, 1927, 1933,
Hessle 1917, McIntosh 1922, Ušakov 1955, Day 1964, 1967, Hartmann-
Schröder 1971, Fauchald 1972a, 1977a, Hartley 1985 Holthe 1986a.
Number of valid species 27. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10,
11, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 25, 26, 27, 28).

Amphicteis alaskensis Moore, 1905.
Type locality Alaska. Distribution (2).

Amphicteis bifolium Kučeruk, 1976.
Type locality Gulf of Alaska. Distribution (2) 543-1050m.

Amphicteis chilensis Hartmann-Schröder, 1965.
Type locality Chile. Distribution (5) 150-260m.

Amphicteis dalmatica Hutchings & Rainier, 1979.
Type locality New South Wales. Distribution (18) eulittoral.

Amphicteis forficata (Kinberg, 1867) as *Aryandes forficata*.
Type locality Equador. Distribution (4). Doubtful, fide Hessle 1917.

Amphicteis glabra Moore, 1905.

Moore 1923, Hartman 1969. Type locality Alaska. Distribution (2, 3) 90-440m.

Amphicteis gunneri (Sars, 1835) as *Amphitrite gunneri*.

Synonyms: *Amphicteis curvipalea* Claparède, 1870,

Amphicteis groenlandica Grube, 1860.

Malmgren 1866, McIntosh 1885, St Joseph 1894, Fauvel 1895a, 1927, 1933, Augener 1906, Wollebæk 1912, Djakonov 1913, Hessle 1917, McIntosh 1922, Thorson 1946, Wesenberg-Lund 1950a, Day 1961, 1967, Hartman 1965b, Imajima & Hartman 1964, Hartmann-Schröder 1971, Desbruyères 1977, Hartley 1985, Holthe 1986a. Type locality Norway. Distribution (1, 2, 3, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 22, 23, 28) upper sublittoral to 5000m.

Amphicteis gunneri antarctica Hessle, 1917. Hartman 1966.

Amphicteis gunneri atlantica McIntosh, 1885.

Amphicteis gunneri japonica (McIntosh, 1885) as *Amphicteis japonica*. Moore 1903, Hessle 1917, Ušakov 1955.

Amphicteis gunneri malayensis Caullery, 1944.

Amphicteis mederi Annenkova, 1929.

Ušakov 1955. Type locality Sea of Okhotsk. Distribution (17) 373m.

Amphicteis midas (Gosse, 1855) as *Crossostoma midas*.

Hartley 1985. Type locality England. Distribution (11).

Amphicteis mucronata Moore, 1923.

Hartman 1969, Fauchald 1972a, Fauchald & Hancock 1981. Type locality California. Distribution (3, 4, 25) 75-1200m.

Amphicteis ninonae Žirkov, 1985.

Type locality Norwegian and Arctic Seas. Distribution (1, 11) 42-1010m.

Amphicteis obscurior Chamberlin, 1919.

Fauchald 1972a. Type locality Western Mexico. Distribution (25) 907m.

Amphicteis orphnius Chamberlin, 1919.

Fauchald 1972a. Type locality Western Mexico. Distribution (25) 907m.

Amphicteis pennata Jeldes & Lefevre, 1959.

Type locality West Africa. Distribution (13).

Amphicteis philippinarum Grube, 1878.

Hessle 1917, Augener 1926. Type locality Philippines. Distri-

bution (15, 20, 21) moderate depths.

Amphicteis posterobranchiata Fauvel, 1932.

Type locality Off Ceylon. Distribution (23) 1000-1250m.

Amphicteis quadridentata Caullery, 1944.

Type locality Indonesia. Distribution (15, 24) 655-1310m.

Amphicteis sargassoensis Hartman & Fauchald, 1971.

Type locality Sargasso Sea. Distribution (27, 28) 3806-5023m.

Amphicteis sarsi McIntosh, 1885.

Type locality off Buenos Aires. Distribution (27) 4875m.

Amphicteis scaphobranchiata Moore, 1906.

Hessle 1917, Moore 1923, Ušakov 1955, Hartman 1969, Fauchald 1972a, Banse 1979, Taghon & Jumars 1984. Type locality North Pacific. Distribution (2, 3, 4, 17, 25) 16-2025m.

Amphicteis sundevalli Malmgren, 1866.

Wollebæk 1912, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Spitsbergen. Distribution (1, 11, 17) 9-64m.

Amphicteis theeli Caullery, 1944.

Type locality East India. Distribution (15) 36m.

Amphicteis trichophora Hartman, 1965.

Type locality New England continental slope. Distribution (10) 500m.

Amphicteis uncopalea Chamberlin, 1919.

Fauchald 1972a. Type locality off New Mexico. Distribution (25) 1240-1660m.

Amphicteis vestis Hartman, 1965.

Hartman & Fauchald 1971. Type locality off New England. Distribution (10, 28) 196-2886m.

Amphicteis weberi Caullery, 1944.

Type locality East India. Distribution (15) 45m.

Amphicteis wyvillei McIntosh, 1885 (perhaps *A. gunneri*).

Type locality Kerguelen. Distribution (26) 2945m.

(*Amphicteis acutifrons* Grube, 1860, see *Ampharete acutifrons*S)

(*Amphicteis angustifolia* Marenzeller, 1884, indeterminate)

- (*Amphicteis antiqua* Ostrooumouff, 1896, see *Hypania antiqua*)
(*Amphicteis brevispinis* Grube, 1860, see *Parhypania brevispinis*)
(*Amphicteis curvipalea* Claparède, 1870, see *Amphicteis gunneri*)
(*Amphicteis finmarchica* Sars, 1865, see *Ampharete finmarchica*)
(*Amphicteis foliata* Haswell, 1883, see *Phyllamphicteis foliata*)
(*Amphicteis fragilis* Wollebæk, 1912, see *Lysippides fragilis*)
(*Amphicteis groenlandica* Grube, 1860, see *Amphicteis gunneri*)
(*Amphicteis gunneri floridus* Hartman, 1951, see *Hobsonia florida*)
(*Amphicteis intermedia* Marion, 1875, see *Ampharete acutifrons*)
(*Amphicteis invalida* Grube, 1860, see *Hypania invalida*)
(*Amphicteis kowalewskii* Grimm, 1877 in Annenkova 1927, see *Hypaniola kowalewskii*)
(*Amphicteis nasuta* Ehlers, 1887, see *Anobothrus nasuta*)
(*Amphicteis procera* Ehlers, 1887, see *Sosane procera*)
(*Amphicteis sibogae* Caullery, 1944, see *Jugamphicteis sibogae*)
(*Amphicteis vega* Wirén, 1883, see *Ampharete vega*)

Amphisamytha Hessle, 1917,

type: *Amphisamytha japonica* Hessle, 1917.

Hessle 1917, Fauchald 1977a. Number of valid species 3. Distribution (2, 16).

Amphisamytha bioculata (Moore, 1906) as *Samytha bioculata*.

Hessle 1917, Fauvel 1933, Hartman 1969. Type locality Strait of Georgia. Distribution (2) 57-166m.

Amphisamytha galapagensis Zottoli, 1983.

Type locality Galapagos Rift. Distribution (25).

Amphisamytha japonica Hessle, 1917.

Imajima & Hartman 1964. Type locality Japan. Distribution (16) 300m.

Amythas Benham, 1921,

type: *Amythas membranifera* Benham, 1921, monotypic.

Day 1964, Fauchald 1977a. Number of valid species 1. Distribution (22).

Amythas membranifera Benham, 1921.

Monro 1939, Hartman 1966c. Type locality Antarctica. Distribution (22) 600-800m.

Amythasides Eliason, 1955.

type: *Amythasides macroglossus* Eliason, 1955, monotypic.

Fauchald 1977a, Holthe 1986a. Number of valid species 1. Distribution (11).

Amythasides macroglossus Eliason, 1955.
Hartmann-Schröder 1971, Holthe 1986a. Type locality Swedish west coast. Distribution (11) 36-75m.

Anobothrella Hartman, 1967,
type: *Anobothrus antarctica* Monro, 1939, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (22).

Anobothrella antarctica (Monro, 1939) as *Anobothrus antarcticus*.
Hartman 1966c, 1967. Type locality Antarctica. Distribution (22, 26) 267-4099m.

Anobothrus Levinsen, 1884.
type: *Ampharete gracilis* Malmgren, 1866.
Hessle 1917, Fauvel 1927, Ušakov 1955, Fauchald 1972a, 1977a, Holthe 1986. Number of valid species 7. Distribution (1, 2, 3, 4, 6, 9, 10, 11, 12, 17, 20, 25).

Anobothrus bimaculatus Fauchald, 1972.
Type locality off western Mexico. Distribution (4, 23) 280-1660m.

Anobothrus gracilis (Malmgren, 1866) as *Ampharete gracilis*.
Synonym: *Sosane sulcata nidrosiensis* Bidekap, 1907.
Levinsen 1886, Fauvel 1909, 1927, Wollebæk 1912, Hessle 1917, Moore 1923, Ušakov 1955, Hartman 1965b, 1969, Hartmann-Schröder 1971, Banse 1979, Holthe 1986a. Type locality Western Europe. Distribution (1, 2, 3, 9, 10, 11, 12, 17) upper sublittoral to 3000m (questionably to 5000m).

Anobothrus mancus Fauchald, 1972.
Type locality off western Mexico. Distribution (25) 725-2575m.

Anobothrus nasuta (Ehlers, 1887) as *Amphicteis nasuta*.
Type locality Florida. Distribution (9).

Anobothrus occidentalis Hartman, 1969.
Type locality California. Distribution (3) 123m.

Anobothrus patagonicus (Kinberg, 1867) as *Ampharete patagonica*.
Hessle 1917, Augener 1926, Monro 1939, Hartman 1966c, Averincev 1982. Type locality Patagonia. Distribution (6, 20) 4-295m.

Anobothrus trilobatus Hartman, 1969.
Type locality California. Distribution (3) 616m.

(*Anobothrus antarctica* Monro, 1939, see *Anobothrella antarctica*)

(*Aryandes* Kinberg, 1867 indeterminable)

(*Aryandes forficata* Kinberg, 1867, see *Amphicteis forficata*)

(*Aryandes gracilis* Kinberg, 1867, indeterminable)

Asabellides Annenkova, 1929,

type: *Sabellides sibirica* Wirén, 1883,

synonym: *Pseudosabellides* Berkeley & Berkeley, 1943.

Ušakov 1955, Day 1964, Fauchald 1977a. Number of valid species 4.

Distribution (1, 2, 3, 10, 17).

Asabellides lineata (Berkeley & Berkeley, 1943) as *Pseudosabellides lineata*.

Hartman 1969. Type locality northern Canada. Distribution (1, 2, 3) shelf depths.

Asabellides litoralis (Annenkova, 1934) as *Neosabellides litoralis*.

Type locality Bering Island. Distribution (1, 17) sublittoral.

Asabellides oculata Berkeley & Berkeley, 1956.

Type locality New Brunswick. Distribution (10).

Asabellides sibirica (Wirén, 1883) as *Sabellides sibirica*.

Synonyms: *Asabellides orientalis* Annenkova, 1929,

Neosabellides alaskensis Treadwell, 1943,

Pseudosabellides littoralis Berkeley & Berkeley, 1943.

Levinsen 1884, Ušakov 1955, Hartman 1956. Type locality Siberian arctic. Distribution (1, 2, 17) 32-55m.

(*Asabellides orientalis* Annenkova, 1929, see *Asabellides sibirica*)

Auchenoplax Ehlers, 1887,

type: *Auchenoplax crinita* Ehlers, 1887, monotypic.

Day 1964, Fauchald 1977a, Hutchings 1977. Number of valid species 3.

Distribution (8, 9, 10, 12, 15, 18, 28).

Auchenoplax crinita Ehlers, 1887.

Hessle 1917, Fauvel 1936, Kirkegaard 1959, Hartman 1965. Type locality Florida. Distribution (8, 9, 10, 12, 28) 200-1500m.

Auchenoplax mesos Hutchings, 1977.

Type locality Queensland. Distribution (18) 5m.

Auchenoplax rullieri, nomen novum, erected for AMPHARETIDAE sp.;

Rullier 1972. As described by Rullier (1972).

Type locality New Caledonia. Distribution (15) 7-8m.

(*Branchiosabella* Claparède, 1863 see *Ampharete*)
(*Branchiosabella zostericola* Claparède, 1863, see *Ampharete acutifrons*)

(*Crossostoma* Gosse, 1855 see *Amphicteis*)
(*Crossostoma midas* Gosse, 1855, see *Amphicteis midas*)

Decemunciger Zottoli, 1982,
type: *Decemunciger apalea* Zottoli, 1982, monotypic.
Number of valid species 1. Distribution (28).

Decemunciger apalea Zottoli, 1982.
Type locality off eastern North America. Distribution (28) 1830-3995m.

Ecamphicteis Fauchald, 1972,
type: *Ecamphicteis elongata* Fauchald, 1972, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (25).

Ecamphicteis elongata Fauchald, 1972.
Type locality off western Mexico. Distribution (25) 1545-2670m.

Eclysippe Eliason, 1955,
type: *Lysippe vanelli* Fauvel, 1936, monotypic.
Fauchald 1977a, Holthe 1986a. Number of valid species 1. Distribution (11, 12, 13).

Eclysippe vanelli (Fauvel, 1936) as *Lysippe vanelli*.
Eliason 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Morocco. Distribution (11, 12, 13) 15-313m.

Egamella Fauchald, 1972,
type: *Egamella quadribranchiata* Fauchald, 1972, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (25).

Egamella quadribranchiata Fauchald, 1972.
Type locality off western Mexico. Distribution (25) 1105-1215m.

Emaga Hartman, 1978,
type: *Emaga laevis* Hartman, 1978, monotypic.
Number of valid species 1. Distribution (26).

Emaga laevis Hartman, 1978.
Type locality Weddell Sea. Distribution (22, 26) 311-3697m.

Endecamera Zottoli, 1982,
type: *Endecamera palea* Zottoli, 1982, monotypic.
Number of valid species 1. Distribution (8).

Endecamera palea Zottoli, 1982.

Type locality off West Indies. Distribution (28) 1830-3995m.

Eusamytha McIntosh, 1885.

type: *Eusamytha pacifica* McIntosh, 1885 monotypic.

Fauchald 1977a. Number of valid species 1. Distribution (25).

Eusamytha pacifica McIntosh, 1885.

Type locality northwest Pacific. Distribution (25) 4230m.

(*Eusamytha* Hartman, 1967, HOMONYM, see *Melinnampharete* (*Eusamythella*))

(*Eusamytha sexdentata* Hartman, 1967, see *Melinnampharete* (*Eusamythella*) *sexdentata*)

(*Eusamythella* Hartman, 1971, replacing *Eusamytha* Hartman, 1967, see subgenera of *Melinnampharete*)

(*Eusamythella sexdentata* (Hartman, 1967) see *Melinnampharete* (*Eusamythella*) *sexdentata*)

Glyphanostomum Levinsen, 1884.

type: *Samythella pallescens* Theel, 1879.

Hessle 1917, Ušakov 1955, Day 1964, 1967, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number of valid species 3. Distribution (1, 2, 3, 10, 11, 17, 22, 26, 27, 28).

Glyphanostomum abyssale Day 1967.

Type locality South Africa. Distribution (27) 2269m.

Glyphanostomum pallescens (Theel, 1879) as *Samytha pallescens*.

Levinsen 1886, Fauvel 1909, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Hartman 1965b, 1969, Holthe 1986a. Type locality Novaya Zemlya. Distribution (1, 2, 3, 10, 11, 17, 22, 28) 45-2900m.

Glyphanostomum scotiarum Hartman, 1978.

Hartman 1967 (as *Glyphanostomum pallescens*). Type locality Weddell Sea. Distribution (22, 26) 298-4209m.

Gnathampharete Desbruyères, 1978.

type: *Gnathampharete paradoxa* Desbruyères, 1978, monotypic.

Number of valid species 1. Distribution (13).

Gnathampharete paradoxa Desbruyères, 1978.

Type locality Ivory Coast. Distribution (13) 15-21m.

Grubianella McIntosh, 1885,
type: *Grubianella antarctica* McIntosh, 1885, monotypic.
Day 1964, Fauchald 1977a. Number of valid species 1. Distribution
(22, 26).

Grubianella antarctica McIntosh, 1885.
Hessle 1917, Hartman 1966c, 1978. Type locality Antarctic Ocean
Distribution (22, 26) 412-2936m.

(*Heterobranchus* Wagner, 1885, see *Sabellides*)
(*Heterobranchus speciosus* Wagner, 1885, see *Sabellides octocirrata*)

Hobsonia Banse, 1979,
type: *Amphicteis gunneri floridus* Hartman, 1951, monotypic.
Number of valid species 1. Distribution (2, 9, 10).

Hobsonia florida (Hartman, 1951) as *Amphicteis florida*.
Synonym: *Hypaniola grayi* Pettibone, 1953.
Zottoli 1966, 1974, Banse 1979, Jumars et al. 1982, Taghon &
Jumars 1984. Type locality Florida. Distribution (2, 9, 10)
very shallow water.

Hypania Ostroomouff, 1897,
type: *Amphicteis invalida* Grube, 1860,
synonym: *Parhypania* Annenkova, 1928.
Derzhawin 1910, Annenkova 1927, 1928, Day 1964, Hartmann-Schröder
1971, Fauchald 1977a. Number of valid species 3. Distribution (12).

Hypania antiqua (Ostroomouff, 1896) as *Amphicteis antiqua*.
Hessle 1917. Type locality Black Sea. Distribution (12).

Hypania brevispinis (Grube, 1860) new combination, as *Amphicteis
brevispinis*. Type locality Caspian Sea. Distribution (12).

Hypania invalida (Grube, 1860) as *Amphicteis invalida*.
Hessle 1917, Weber 1964, Hartmann-Schröder 1971, Manoleli 1977.
Type locality Caspian Sea. Distribution (12) <1-415m, also in
fresh water.

Hypania invalida occidentalis Ostroumouw, 1897.

Hypaniola Annenkova, 1927,
type: *Amphicteis kowalewskii* Grimm in Grube, 1877, monotypic.
Annenkova 1928, Pettibone 1953, Fauchald 1977a. Number of valid
species 1. Distribution (10, 12).

Hypaniola kowalewskii (Grimm in Grube, 1887) as *Amphicteis
(?Aryandes) kowalewskii*.

Marinescu 1964, Manoleli 1977. Type locality Caspian Sea. Distribution (12).

(*Hypaniola grayi* Pettibone, 1953, see *Hobsonia florida*)

Jugamphicteis Fauchald & Hancock, 1981,
type: *Amphicteis sibogae* Caullery, 1944.
Number of valid species 2. Distribution (24, 25).

Jugamphicteis paleata Fauchald & Hancock, 1981.
Type locality off Oregon. Distribution (25).

Jugamphicteis sibogae (Caullery, 1944), as *Amphicteis sibogae*.
Fauchald & Hancock 1981. Type locality East India. Distribution
(24) 883-2798m.

Lysippe Malmgren, 1866,
type: *Lysippe labiata* Malmgren, 1866.
Hessle 1917, Ušakov 1955, Day 1964, Hartmann-Schröder 1971, Fauchald
1972a, 1977a, Holthe 1986a. Number of valid species 3. Distribution
(1, 2, 3, 4, 10, 11, 12, 17, 25, 28).

Lysippe annectens Moore, 1923.
Hartman 1969, Fauchald 1972a, Hartman 1960. Type locality Cali-
fornia. Distribution (3, 4, 25) 70-1950m.

Lysippe labiata Malmgren, 1866.
Wollebæk 1912, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955,
Hartman 1965b, Hartmann-Schröder 1971, Banse 1979, Fournier &
Pocklington 1984, Holthe 1986a. Type locality Spitsbergen. Dis-
tribution (1, 2, 10, 11, 12, 17, 28) 50-1500m.

Lysippe mexicana Fauchald, 1972.
Type locality off western Mexico. Distribution (25) 800-2500m.

(*Lysippe agulhasensis* Day, 1961, see *Ampharete agulhasensis*)
(*Lysippe capensis* Day, 1961, see *Ampharete capensis*)
(*Lysippe vanelli* Fauvel, 1936, see *Eclysippe vanelli*)

Lysippides Hessle, 1917,
type: *Amphicteis fragilis* Wollebæk, 1912.
Day 1964, Fauchald 1977a, Holthe 1986a. Number of valid species 1.
Distribution (11, 17).

Lysippides fragilis (Wollebæk, 1912) as *Amphicteis fragilis*.
Hessle 1917, Holthe 1986a. Type locality Norway. Distribution
(11, 17) 20-180m.

Melinnampharete Annenkova, 1937,
type: *Melinnampharete eoa* Annenkova, 1937,
synonyms: *Melinnata* Hartman, 1965; *Eusamythella* Hartman, 1971; *Melythasides* Desbruyères, 1978.

Subgenera: *Melinnampharete* Annenkova, 1937, new rank; *Melinnata* Hartman, 1965, new rank; *Eusamythella* Hartman, 1971, new rank; *Melythasides* Desbruyères 1978, new rank.

Ušakov 1955, Hartman 1960, 1978, Day 1964, Hartman & Fauchald 1971, Fauchald 1977a. Number of valid species 6. Distribution (17, 25, 26, 28, 29).

Melinnampharete (Melinnata) americana (Hartman, 1965) new combination, as *Melinnata americana*.
Hartman & Fauchald 1971. Type locality New England continental slope. Distribution (28) 2000-4862m.

Melinnampharete (Melinnampharete) eoa Annenkova, 1937.
Ušakov 1955, Hartman 1960. Type locality Sea of Japan. Distribution (17, 25) 78-1600m.

Melinnampharete (Melinnampharete) gracilis Hartman, 1969.
Hartman 1969, Fauchald & Hancock 1981. Type locality California. Distribution (25) 800-4416m.

Melinnampharete (Melythasides) laubieri (Desbruyères, 1978) new combination, as *Melythasides laubieri*.
Holthe 1986a. Type locality Spitzbergen Basin. Distribution (28, 29) <1000-3713m.

Melinnampharete (Melinnampharete) septemdentata Levenstejn, 1978.
Type locality Pacific region of the Antarctic. Distribution (26) 5400m.

Melinnampharete (Eusamythella) sexdentata (Hartman, 1967) new combination, as *Eusamytha sexdentata*.
Hartman 1978. Type locality Weddell Sea. Distribution (26) 2119-2562m.

(*Melinnata* Hartman, 1965, see subgenera of *Melinnampharete*)
(*Melinnata americana* Hartman, 1965, see *Melinnampharete (Melinnata) americana*)

Melinnoides Benham, 1927,
type: *Melinnoides nelsoni* Benham, 1927, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (22).

- Melinnoides nelsoni* Benham, 1927.
Hartman 1966c. Type locality Antarctica. Distribution (22) 370m.
- (*Melythasides* Desbruyères, 1978, see subgenera of *Melinnampharete*)
(*Melythasides laubieri* Desbruyères, 1978, see *Melinnampharete*
(*Melythasides*) *laubieri*)
- Mexamage* Fauchald, 1972,
type: *Mexamage corrugata* Fauchald, 1972, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (25).
- Mexamage corrugata* Fauchald, 1972.
Type locality off western Mexico. Distribution (25) 1620-1660m.
- (*Microsamytha* Augener, 1928 see *Alkmaria*)
(*Microsamytha ryckiana* Augener, 1928, see *Alkmaria romijni*)
- Mugga* Eliason, 1955,
type: *Mugga wahrbergi* Eliason, 1955, monotypic.
Day 1964, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number
of valid species 2. Distribution (11, 28).
- Mugga bathyalis* Holthe, 1986.
Type locality deep Norwegian Sea. Distribution (28).
- Mugga wahrbergi* Eliason, 1955.
Hartmann-Schröder 1971, Holthe 1986a. Type locality Skagerrak.
Distribution (11) 20-80m.
- Muggoides* Hartman, 1965,
type: *Muggoides cinctus* Hartman, 1965, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (28).
- Muggoides cinctus* Hartman, 1965.
Type locality Bermuda. Distribution (28) 1000-1700m.
- Neopaiwa* Hartman & Fauchald, 1971,
type: *Neopaiwa cirrata* Hartman & Fauchald, 1971, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (28).
- Neopaiwa cirrata* Hartman & Fauchald, 1971.
Type locality Sargasso Sea. Distribution (28) 5007m.
- Neosabellides* Hessle, 1917,
type: *Sabellides elongatus* Ehlers, 1913.
Fauvel 1927, Ušakov 1955, Day 1964, Fauchald 1977a. Number of valid
species 2. Distribution (14, 22, 27, 28).

Neosabellides elongatus (Ehlers, 1912) as *Sabellides elongatus*.
Ehlers 1913, Hessle 1917, Benham 1927a, Day 1963b, Hartman 1966c,
1978. Type locality Antarctica. Distribution (14, 22) 120-920m.

Neosabellides oceanica (Fauvel, 1909) as *Sabellides oceanica*.
Fauvel 1927. Type locality off France (27, 28) 1743m.

(*Neosabellides alaskensis* Treadwell, 1943, see *Asabellides*
sibirica)

(*Neosabellides litoralis* Annenkova, 1934, see *Asabellides litora-*
lis)

Neosamytha Hartman, 1967,
type: *Neosamytha gracilis* Hartman, 1967, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (22).

Neosamytha gracilis Hartman, 1967.
Type locality Antarctica. Distribution (22) 220-311m.

Noanelia Desbruyères & Laubier, 1977,
type: *Noanelia hartmanae* Desbruyères & Laubier, 1977, monotypic.
Number of valid species 1. Distribution (28).

Noanelia hartmanae Desbruyères & Laubier, 1977.
Type locality Gulf of Gascony. Distribution (28) 2115-4251m.

Pabits Chamberlin, 1919,
type: *Pabits deroderus* Chamberlin, 1919, monotypic.
Day 1964, Fauchald 1977a. Number of valid species 1. Distribution
(24).

Pabits deroderus Chamberlin, 1919.
Type locality Marquesas. Distribution (24) 4530m.

Paiwa Chamberlin, 1919,
type: *Paiwa abyssi* Chamberlin, 1919, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (24).

Paiwa abyssi Chamberlin, 1919.
Type locality off Peru. Distribution (24) 4112m.

Paramage Caullery, 1944,
type: *Paramage madurensis* Caullery, 1944, monotypic.
Day 1964, Fauchald 1977a. Number of valid species 1. Distribution
(15).

Paramage madurensis Caullery, 1944.

Type locality East India. Distribution (15) 69-91m.

Parampharete Hartman, 1978,

type: *Paramage wedellia* Hartman, 1978, monotypic.

number of valid species 1. Distribution (22).

Parampharete wedellia Hartman, 1978.

Type locality Weddell Sea. Distribution (22) 513m.

Paramphicteis Caullery, 1944,

type: *Sabellides angustifolia* Grube, 1878, monotypic.

Fauchald 1977a. Number of valid species 1. Distribution (15).

Paramphicteis angustifolia (Grube, 1878) as *Sabellides angustifolia* (non *Amphicteis angustifolia* Marenzeller, 1885).

Hessle 1917, Caullery 1944. Type locality Philippines. Distribution (15) shallow water.

(*Parhypania* Annenkova, 1928, see *Hypania*)

(*Parhypania brevispinis* (Grube, 1860) as *Amphicteis brevispinis*, see *Hypania brevispinis*)

Phyllampharete Hartman & Fauchald, 1971,

type: *Phyllampharete longicirrata* Hartman & Fauchald, 1971, monotypic.

Fauchald 1977a. Number of valid species 1. Distribution (28).

Phyllampharete longicirrata Hartman & Fauchald, 1971.

Type locality northwest Atlantic. Distribution (28) 5018-5023m.

Phyllamphicteis Augener, 1918,

type: *Phyllamphicteis collaribranchis* Augener, 1918.

Day 1964, Fauchald 1977a. Number of valid species 2. Distribution (13, 18, 19).

Phyllamphicteis collaribranchis Augener, 1918.

Type locality West Africa. Distribution (13).

Phyllamphicteis foliata (Haswell, 1883) as *Amphicteis foliata*.

Hessle 1917. Type locality Queensland. Distribution (18, 19).

Phyllocomus Grube, 1878,

type: *Phyllocomus crocea* Grube, 1878, monotypic.

Hessle 1917, Day 1964, 1967, Fauchald 1977a. Number of valid species 1. Distribution (6, 22).

Phyllocomus crocea Grube, 1878.

McIntosh 1885, Hessle 1917, Hartman 1966c. Type locality off Kerguelen. Distribution (6, 22) 138-640m.

(*Phyllocomus dibranchiata* Benham, 1921, see *Phyllocomus crocea*)

(*Pseudoampharete* Hartmann-Schröder, 1960, see *Polycirrus*, TEREBELLIDAE)

(*Pseudoampharete tentaculata* Hartmann-Schröder, 1960, see *Polycirrus tentaculatus*, TEREBELLIDAE)

Pseudamphicteis Hutchings, 1977,
type: *Pseudamphicteis papillosa* Hutchings, 1977.
Number of valid species 1. Distribution (15, 18).

Pseudamphicteis papillosa Hutchings, 1977.
Type locality Queensland. Distribution (15, 18) 5-8m.

(*Pseudosabellides* Berkeley & Berkeley, 1943, see *Asabellides*)
(*Pseudosabellides lineata* Berkeley & Berkeley, 1943, see *Asabellides lineata*)
(*Pseudosabellides littoralis* Berkeley & Berkeley, 1943, see *Asabellide sibirica*)

Pterampharete Augener, 1918,
type: *Pterampharete luderitzi* Augener, 1918, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (14).

Pterampharete luderitzi Augener, 1918.
Kirkegaard 1959, Day 1961, 1967. Type locality Southwest Africa
Distribution (14) shallow water.

Pterolysippe Augener, 1918.
type: *Pterolysippe bipennata* Augener, 1918, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (13).

Pterolysippe bipennata Augener, 1918.
Type locality West Africa. Distribution (13).

(*Rytocephalus* Quatrefages, 1866, indeterminate)
(*Rytocephalus ebranchiatus* Quatrefages, 1866, indeterminate)

Sabellides Milne Edwards in Malmgren, 1866,
type: *Sabella octocirrata* Sars, 1835,
synonym: *Heterobranchus* Wagner, 1885.
Wollebæk 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, Ušakov 1955,
Day 1964, 1967, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a.
Number of valid species 5. Distribution (1, 2, 6, 10, 11, 12, 14).

Sabellides borealis Sars, 1856.

Malmgren 1866, Wollebæk 1912, McIntosh 1915, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Hartmann-Schröder 1971, Fournier & Pocklington 1984, Holthe 1986a, b. Type locality Norway. Distribution (1, 2, 10, 11) 30-350m.

Sabellides capensis Day, 1961.

Day 1967. Type locality South Africa (14) shallow water.

Sabellides octocirrata (Sars, 1835) as *Sabella octocirrata*.

Synonym: *Heterobranchus speciosus* Wagner, 1885.

Malmgren 1866, Wollebæk 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, Day 1967, Hartmann-Schröder 1971, Holthe 1986a. Type locality Norway. Distribution (1, 10, 11, 12, 14) sublittoral to 500m.

Sabellides octocirrata britannica McIntosh, 1922.

Sabellides octocirrata mediterranea Marion, 1879.

Sabellides oculata Webster, 1879.

Type locality New Jersey. Distribution (10) 5m.

Sabellides pusilla Verrill, 1873, as *Amage pusilla*.

Type locality New England. Distribution (6, 10).

(*Sabellides adpersa* Grube, 1863, see *Amage adpersa*)

(*Sabellides angustifolia* Grube, 1878, see *Paramphicteis angustifolia*)

(*Sabellides anops* Johnson, 1901, see *Amage anops*)

(*Sabellides brevicaudata* Sars, 1866, questionably *Amage auricula*)

(*Sabellides cristata* Sars, 1851, see *Melinna cristata*)

(*Sabellides delus* Chamberlin, 1919, see *Amage delus*)

(*Sabellides elongatus* Ehlers, 1913, see *Neosabellides elongatus*)

(*Sabellides fulva* Ehlers, 1874, see *Samythella elongata*)

(*Sabellides oceanica* Fauvel, 1909, see *Neosabellides oceanica*)

(*Sabellides oligocirra* Schmarda, 1861, see *Pseudothelepus*, TERE-BELLIDAE; Augener 1925b)

(*Sabellides sexcirrata* Sars, 1856, see *Samytha sexcirrata*)

(*Sabellides sibirica* Wirèn, 1883, see *Asabellides sibirica*)

Samytha Malmgren, 1866,

type: *Sabellides sexcirrata* Sars, 1856.

Hessle 1917, McIntosh 1922, Ušakov 1955, Day 1964, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number of valid species 7. Distribution (1, 2, 3, 10, 11, 15, 17, 22, 24, 25, 28).

Samytha californiensis Hartman, 1969.

Banse 1979. Type locality California. Distribution (2, 3) 25m to slope depths.

Samytha gurjanovae Ušakov, 1950.
Ušakov 1955. Type locality northwest Pacific. Distribution (17, 25) 67-1366m.

Samytha hesslei Caullery, 1944.
Type locality East India. Distribution (15) 27m.

Samytha heterobranchia Caullery, 1944.
Type locality East India. Distribution (15, 24) 462-1788m.

Samytha oculata Grube, 1878.
Type locality Japan. Distribution (16).

Samytha sexcirrata (Sars, 1856) as *Sabelliides sexcirrata*.
Malmgren 1866, Wollebæk 1912, Hessle 1917, Chamberlin 1920, McIntosh 1922, Moore 1923, Ušakov 1955, Hartman 1969, Hartman & Fauchald 1971, Hartmann-Schröder 1971, Holthe 1986a. Type locality Norway. Distribution (1, 2?, 3, 10, 11, 28) littoral to ca 5000m.

Samytha speculatrix Ehlers, 1913.
Hessle 1917, Hartman 1966c. Type locality Antarctica. Distribution (22) 350m.

(*Samytha bioculata* Moore, 1906, see *Amphisamytha bioculata*)
(*Samytha pallescens* Theel, 1879, see *Glyphanostomum pallescens*)

Samythella Verrill, 1873,
type: *Samythella elongata* Verrill, 1873.
Ušakov 1955, Day 1964, 1967, Hartmann-Schröder 1971, Fauchald 1972a, 1977a, Holthe 1986a. Number of valid species 6. Distribution (1, 4, 11, 14, 17, 25, 28).

Samythella affinis Day, 1963.
Day 1967. Type locality South Africa. Distribution (14) 183m.

Samythella bathycola Ušakov, 1950.
Ušakov 1955. Type locality Northwest Pacific. Distribution (17).

Samythella elongata Verrill, 1873.
Synonym *Sabelliides fulva* Ehlers, 1874.
Hartman & Fauchald 1971. Type locality New England. Distribution (28).

Samythella interrupta Fauchald, 1972.
Type locality off western Mexico. Distribution (25) 1100-1215m.

Samythella neglecta Wollebæk, 1912.

Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Holthe 1986a. Type locality Norwegian Sea. Distribution (1, 11) 100-960m.

Samythella pala Fauchald, 1972.

Type locality Gulf of California. Distribution (4) 894m.

Samythopsis McIntosh, 1885,

type: *Samythopsis grubei* McIntosh, 1885, monotypic.

Day 1964, Fauchald 1977a. Number of valid species 1. Distribution (24).

Samythopsis grubei McIntosh, 1885.

Hessle 1917. Type locality off Chile. Distribution (24) 4100m.

Schistocomus Chamberlin, 1919.

type: *Schistocomus hiltoni* Chamberlin, 1919.

Fauvel 1933, Ušakov 1955, Fauchald 1977a. Number of valid species 3. Distribution (2, 3, 15, 17).

Schistocomus fauveli Hartman, 1955.

Type locality India. Distribution (15).

Schistocomus hiltoni Chamberlin, 1919.

Fauvel 1933, 1953, Day 1967, Hartman 1969. Type locality California. Distribution (2, 3) 0-18m.

Schistocomus sovjeticus Annenkova, 1937.

Okuda 1947, Ušakov 1955. Type locality Peter the Great Bay, northwestern Pacific. Distribution (17).

Sosane Malmgren, 1866,

type: *Sosane sulcata* Malmgren, 1866.

Hessle 1917, Day 1964, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986. Number of valid species 4. Distribution (8, 11, 12, 15, 24).

Sosane fauveli Caullery, 1944.

Type locality East India. Distribution (24) 1570m.

Sosane procera (Ehlers, 1887) as *Amphicteis procera*.

Augener 1906, Hessle 1917. Type locality Caribbean Sea. Distribution (8, 15, 24) 330-2794m.

Sosane procera malayensis Caullery, 1944.

Sosane sulcata Malmgren, 1866.

Wollebæk 1912, Hessle 1917, Hartmann-Schröder 1971, Gibbs & Probert 1973, Holthe 1986a.

Type locality Swedish west coast. Distribution (11, 12) 12-500m.

Sosane wireni Gaullery, 1944.

Gibbs 1971. Type locality East India. Distribution (15) 24-56m.

(*Sosane sulcata nidrosiensis* Bidekap, 1907, see *Anobothrus gracilis*)

Sosanella Hartman, 1965,

type: *Sosanella apalea* Hartman, 1965, monotypic.

Fauchald 1977a. Number of valid species 1. Distribution 10, 28.

Sosanella apalea Hartman, 1965.

Type locality off New England. Distribution (10, 28) 400-1000m.

Sosanides Hartmann-Schröder, 1965,

type: *Sosanides glandularis* Hartmann-Schröder, 1965, monotypic.

Fauchald 1977a. Number of valid species 1. Distribution (5).

Sosanides glandularis Hartmann-Schröder, 1965.

Carrasco 1977. Type locality Chile. Distribution (5) 60-150m.

Sosanopsis Hessle, 1917,

type: *Sosanopsis wireni* Hessle, 1917.

Hessle 1917, Day 1964, Hartmann-Schröder 1971, Fauchald 1977a, Banse 1979, Holthe 1986a, Number of valid species 3. Distribution (2, 3, 11, 22).

Sosanopsis hesslei Banse, 1979.

Type locality British Columbia. Distribution (2) 44m.

Sosanopsis kerguelensis Monro, 1939.

Hartman 1966c, 1978. Type locality Kerguelen. Distribution (22) 20-659m.

Sosanopsis wireni Hessle, 1917.

Hartmann-Schröder 1971, Holthe 1986a. Type locality Swedish west coast. Distribution (11) 50-440m.

(*Sosanopsis armipotens* Moore, 1923, see *Amelinna armipotens*, MELINNINAE)

Weddellia Hartman, 1967,

type: *Weddellia profunda* Hartman, 1967, monotypic.

Fauchald 1977c. Number of valid species 1. Distribution (26).

Weddellia profunda Hartman, 1967.

Type locality Weddell Sea. Distribution (26) 2553-2575m.

Ymerana Holthe, 1986,
type: *Ymerana pteropoda* Holthe, 1986, monotypic.
Number of valid species 1. Distribution (29).

Ymerana pteropoda Holthe, 1986.
Type locality deep Polar Sea. Distribution (29) 3270m.

USCHAKOVINAE, n. subfam. (see page 68)

Number of genera described 1. Number of valid species 1.

Uschakovius Laubier, 1973,
type: *Uschakovius enigmaticus* Laubier, 1973, monotypic.
Number of valid species 1. Distribution 28.

Uschakovius enigmaticus Laubier, 1973.
Type locality eastern Mediterranean. Distribution (28) 3174m.

MELINNINAE Chamberlin, 1919

Day 1964, 1967, Hartmann-Schröder 1971, Holthe 1986a. Number of
genera described 12, whereof 7 presently considered valid. Number of
valid species 42.

Amelinna Hartman, 1969,
type: *Amelinna abyssalis* Hartman, 1969.
Fauchald 1977a. Number of valid species 2. Distribution (25).

Amelinna abyssalis Hartman, 1969.
Fauchald & Hancock 1981. Type locality off California. Distri-
bution (25) 1920m.

Amelinna armipotens (Moore, 1923) as *Sosanopsis armipotens*.
Hartman 1969. Type locality California. Distribution (25) 4100m.

(*Irana* Wesenberg-Lund, 1949 see subgenera of *Isolda*)
(*Irana heterobranchiata* Wesenberg-Lund, 1949, see *Isolda* (*Irana*)
heterobranchia)

Isolda Müller, 1858,
type: *Isolda pulchella* Müller, 1858,
synonyms: *Oerpata* Kinberg, 1867; *Irana* Wesenberg-Lund, 1949.
Subgenera: *Isolda* Müller, 1858, new rank; *Oerpata* Kinberg, 1867, new

rank; *Irana* Wesenberg-Lund, 1949, new rank.
Hessle 1917, Day 1964, 1967, Fauchald 1977a, Hutchings 1977. Number
of valid species 6. Distribution (5, 8, 9, 13, 14, 15, 18, 19).

Isolda (Oerpata) armata (Kinberg, 1867).
Type locality Equador. Distribution (4).

Isolda (Isolda) bipinnata Fauchald, 1977.
Type locality Atlantic coast of Panama. Distribution (8).

Isolda (Irana) heterobranchia (Wesenberg-Lund, 1949) new combina-
tion, as *Irana heterobranchia*.
Type locality Persian Gulf. Distribution (15) 7m.

Isolda (Isolda) pulchella Müller, 1858.
Synonyms: *Isolda sibogae* Caullery, 1944,
Isolda warnbroensis Augener, 1914.
Augener 1918, Day 1963a, 1967, Hutchings 1977. Type locality
Brazil. Distribution (8, 14, 15, 18, 19) shallow water.

Isolda (Isolda) viridis Hartmann-Schröder, 1965.
Carrasco 1977. Type locality Chile. Distribution (5) 50m.

Isolda (Isolda) whydahensis Augener, 1918.
Day 1967. Type locality South Africa. Distribution (13, 14).

(*Isolda sibogae* Caullery, 1944 see *Isolda pulchella*)
(*Isolda warnbroensis* Augener, 1914, see *Isolda pulchella*)

Melinantipoda Hartman, 1967.
type: *Melinantipoda antarctica* Hartman, 1967, monotypic.
Fauchald 1977a. Number of valid species 2. Distribution (2, 22).

Melinantipoda antarctica Hartman, 1967.
Hartman 1978. Type locality Antarctic. Distribution (26) 3111-
4795m.

Melinantipoda quaterdentata Kučeruk, 1976.
Type locality Gulf of Alaska. Distribution (25) 2970-3860m.

(*Melinnella* McIntosh, 1914, see *Axionice*, TERESELLIDAE)
(*Melinnella macduffi* McIntosh, 1914, see *Axionice maculata*;
Holthe 1986a.)

Melinna Malmgren, 1866,
type: *Sabellides cristata* Sars, 1851.

Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Nyholm 1951, Ušakov 1955, Day 1964, 1967, Hartmann-Schröder 1971, Fauchald 1972a, 1977a, Holthe 1986a. Number of valid species 19. Distribution (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 17, 20, 22, 24, 25, 26, 27, 28).

Melinna aberrans Fauvel, 1932.

Type locality India. Distribution (15) shallow water.

Melinna armandi McIntosh, 1885.

Augener 1926. Type locality west of New Zealand. Distribution (20, 24) 60-2024m.

Melinna buskii McIntosh, 1922.

Hartman 1966c. Type locality Antarctica. Distribution (26) 1950m.

Melinna cristata (Sars, 1851) as *Sabellides cristata*.

Synonym: *Melinna elisabethae* McIntosh, 1922.

Malmgren 1866, Levinsen 1884, 1886, Ehlers 1887, 1912, Wollebak 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, Hartman 1945, 1965b, 1966c, 1967, Nyholm 1951, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Hutchings 1973a, 1973b, Banse 1979, Fournier & Pocklington 1984, Holthe 1986a. Type locality Finnmark, Norway. Distribution (1, 2, 5, 6, 9, 10, 11, 12, 17, 22, 24, 26, 27, 28) upper sublittoral to depths exceeding 3800m

Melinna cristata australis Hartmann-Schröder, 1965.

Melinna denticulata Moore, 1908.

Moore 1923. Type locality Alaska. Distribution (2, 3, 25) 240-1075m.

Melinna exilia Fauchald, 1972.

Type locality off western Mexico. Distribution (25) 1620-1660m.

Melinna heterodonta Moore, 1923, as *Melinna cristata heterodonta*.

Hartman 1960, 1969, Fauchald 1972a. Type locality California. Distribution (3, 4, 25) 200-2575m.

Melinna islandica Sæmundsson, 1918.

Holthe 1986a. Type locality Iceland. Distribution (11) 19-24m.

Melinna maculata Webster, 1879.

McIntosh 1885. Type locality Virginia. Distribution (8, 9, 10) 720-865m.

Melinna malmgreni Caullery, 1944.

Type locality East India. Distribution (15) 275m.

Melinna monoceroides Fauvel, 1936.

Day 1967. Type locality Morocco. Distribution (12) 224m.

Melinna oculata Hartman, 1969.

Type locality California. Distribution (3) 22m.

Melinna pacifica McIntosh, 1885.

Type locality Pacific Ocean. Distribution (3, 25) 750-4015m.

Melinna palmata Grube, 1870.

Synonym: *Melinna adriatica* Marenzeller, 1874.

Fauvel 1897b, 1909, Rioja 1917, McIntosh 1922, Dragoli 1961, Gomoiu 1982. Type locality Mediterranean. Distribution (11, 12, 15) sublittoral to 384m.

Melinna parumdentata Ehlers, 1887.

Type locality Florida. Distribution (9) 590m.

Melinna plana Fauchald, 1972.

Type locality off western Mexico. Distribution (25) 1620-1660m.

Melinna profunda Augener, 1906.

Hessle 1917. Type locality West Indies. Distribution (28) more than 2760m.

Melinna tentaculata Fauchald, 1972.

Type locality off western Mexico. Distribution (4) 1490-3420m.

Melinna uruguayi Hessle, 1917.

Type locality Uruguay. Distribution (7) 80m.

(*Melinna adriatica* Marenzeller, 1874, see *Melinna palmata*)

(*Melinna cristata* Moore, 1905, see *Melinna denticulata*)

(*Melinna cristata heterodonta* Moore, 1923, see *Melinna heterodonta*)

(*Melinna dubita* Hoagland, 1920, see *Melinnopsis dubita*)

(*Melinna elisabethae* McIntosh, 1922, see *Melinna cristata*)

(*Melinna monocera* Augener, 1906, see *Melinnopsis monocera*)

(*Melinna ochotica* Ušakov, 1950, see *Moyanus ochotica*)

(*Melinnexis* Annenkova, 1931, see *Melinnopsis*)

(*Melinnexis annenkovae* Ušakov, 1952, see *Melinnopsis annenkovae*)

(*Melinnexis arctica* Annenkova, 1931, see *Melinnopsis arctica*)

(*Melinnexis collaris* Hartman, 1967, see *Melinnopsis collaris*)

(*Melinnexis somovi* Ušakov, 1957, see *Melinnopsis somovi*)

(*Melinnides* Wesenberg-Lund, 1950, see *Melinnopsis*)
(*Melinnides rostrata* Wesenberg-Lund, 1950, see *Melinnopsis rostrata*)

Melinnopsides Day, 1964,
type: *Melinnopsis capensis* Day, 1955, monotypic.
Day 1967, Fauchald 1977a. Number of valid species 1. Distribution (14).

Melinnopsides capensis (Day, 1955), as *Melinnopsis capensis*
Day 1967. Type locality South Africa. Distribution (14) near low tide mark.

Melinnopsis McIntosh, 1885,
type: *Melinnopsis atlantica* McIntosh, 1885, monotypic,
synonyms: *Melinnexis* Annenkova, 1931; *Melinnides* Wesenberg-Lund, 1950.
Ušakov 1955, Hartman 1960, 1967, Day 1964, Fauchald 1977a, Holthe 1986a. Number of valid species 10. Distribution (4, 8, 15, 17, 25, 28, 29).

Melinnopsis annenkovae (Ušakov, 1952) as *Melinnexis*.
Ušakov 1955.
Type locality northwest Pacific. Distribution (17, 25) 51-1900m.

Melinnopsis arctica (Annenkova, 1931) as *Melinnexis arctica*.
Ušakov 1955, Holthe 1986a, b. Type locality Queen Victoria Sea.
Distribution (1, 29) 165-1200m.

Melinnopsis atlantica McIntosh, 1885,
Hessle 1917. Type locality off Maryland. Distribution (28) 3130m.

Melinnopsis collaris (Hartman, 1967) as *Melinnexis collaris*.
Type locality Mid-Pacific Basin. Distribution (25) 4041-4813m.

Melinnopsis dubita (Hoagland, 1920) as *Melinna dubita*.
Fauvel 1933. Type locality Philippines. Distribution (15) 550-930m.

Melinnopsis monocera (Augener, 1906) as *Melinna monocera*.
Hessle 1917. Type locality Lesser Antilles. Distribution (8) 213-313m.

Melinnopsis moorei (Hartman, 1960) as *Melinnexis moorei*.
Hartman 1969, Fauchald 1972a. Type locality California. Distribution (4, 25) 470-4015m.

Melinnopsis rostrata (Wesenberg-Lund, 1950) as *Melinnides rostrata*.

Type locality West Greenland. Distribution (29) 3229m.

Melinnopsis somovi (Ušakov, 1957) as *Melinnexis somovi*.

Type locality Polar Basin. Distribution (29) 1239-1694m.

Melinnopsis tentacula (Treadwell, 1906) as *Terebellides tentacula*.

Hessle 1917, Hartman 1956, 1966a. Type locality Hawaii. Distribution (15, 25) 512-1367m.

Moyanus Chamberlin, 1919,

type: *Moyanus explorans* Chamberlin, 1919, monotypic.

Day 1964, Fauchald 1977. Number of valid species 2. Distribution (24, 25).

Moyanus explorans Chamberlin, 1919.

Type locality off Peru. Distribution (24) 4088m.

Moyanus ochotica (Ušakov, 1950) as *Melinna ochotica*.

Ušakov 1955.

Type locality Sea of Ochotsk. Distribution (25) 1366m.

(*Oerpata* Kinberg, 1867, see subgenera of *Isolda*)

(*Oerpata armata* Kinberg, 1867, see *Isolda armata*)

ALVINELLIDAE Desbruyères & Laubier, 1979, as ALVINELLINAE

Desbruyères & Laubier 1982, 1985. Number of genera described 2, both presently considered valid. Number of valid species 5.

Alvinella Desbruyères & Laubier, 1979,

type: *Alvinella pompejana* Desbruyères & Laubier, 1979, monotypic.

Desbruyères & Laubier 1985. Number of valid species 2. Distribution (25).

Alvinella caudata Desbruyères & Laubier, 1985.

Type locality eastern Pacific deep water. Distribution (25) 2590m.

Alvinella pompejana Desbruyères & Laubier, 1979.

Gaill et al. 1984, Terwilliger & Terwilliger 1984, Desbruyères & Laubier 1985, Vovelle & Gaill 1986. Type locality eastern Pacific deep water. Distribution (25) 2590m.

Paralvinella Desbruyères & Laubier, 1982,

type: *Paralvinella grasslei* Desbruyères & Laubier, 1982, monotypic.

Desbruyères & Laubier 1985. Number of valid species 3. Distribution (25).

Paralvinella grasslei Desbruyères & Laubier, 1982.
Desbruyères & Laubier 1985. Type locality Galapagos Rift. Distribution (25) 2450m.

Paralvinella palmiformis Desbruyères & Laubier, 1985.
Type locality Juan de Fuca and Explorer ridges. Distribution (25).

Paralvinella pandorae Desbruyères & Laubiuer, 1985.
Type locality Juan de Fuca and Explorer ridges. Distribution (25).

Paralvinella pandorae irlandei Desbruyères & Laubier, 1985.

TRICHOBRANCHIDAE Malmgren, 1866

Synonym: Canephorinae Malmgren, 1866.

McIntosh 1922, Fauvel 1927, Lindroth 1941, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Fauchald & Jumars 1979, Holthe 1986a. Number of genera described 10, whereof 7 presently considered valid. Number of valid species 38.

Ampharetides Ehlers, 1913,
type: *Ampharetides vanhoeffeni* Ehlers, 1913, monotypic.
Hessle 1917. Number of valid species 1. Distribution (26).

Ampharetides vanhoeffeni Ehlers, 1913.
Hessle 1917, Augener 1918, Hartman 1966. Type locality Antarctica.
Distribution (26) 2725m.

(*Aponobranchus* Gravier, 1905, see *Terebellides*)
(*Aponobranchus perrieri* Gravier, 1905, see *Terebellides stroemi*)

Artacamella Hartman, 1955,
type: *Artacamella hancocki* Hartman, 1955, monotypic.
Fauchald 1977a, Hutchings 1977, Holthe 1977c, Fauchald & Hancock 1981. Number of valid species 2. Distribution (3, 18, 19).

Artacamella dibranchiata Knox & Cameron, 1971.
Hutchings 1977. Type locality Victoria. Distribution (18, 19) 8-24m.

Artacamella hancocki Hartman, 1955.
Holthe 1977c, Fauchald & Hancock 1981. Type locality California.
Distribution (3) 42m.

(*Corephorus* Grube, 1846, see *Terebellides*)
(*Corephorus elegans* Grube, 1846, see *Terebellides stroemi*)

(*Filibranchus* Malm, 1874, see *Trichobranchus*)
(*Filibranchus roseus* Malm, 1874, see *Trichobranchus roseus*)

Novobranchus Berkeley & Berkeley, 1954,
type: *Novobranchus pacificus* Berkeley & Berkeley, 1954, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (2, 3).

Novobranchus pacificus Berkeley & Berkeley, 1954.
Type locality Western Canada. Distribution (2, 3) 46m.

Octobranchus Marion & Bobretzky, 1875,
type: *Terebella lingulata* Grube, 1863.
Hessle 1917, Fauvel 1927, Fauchald 1977a, Kingston & Mackie 1980,
Holthe 1986a. Number of valid species 5. Distribution (11, 12, 16,
22).

Octobranchus antarcticus Monro, 1936.
Hartman 1966c, Kingston & Mackie 1980. Type locality Antarctica.
Distribution (22) 278-500m.

Octobranchus floriceps Kingston & Mackie, 1980.
Holthe 1986a. Type locality North Sea. Distribution (11) 155-370m.

Octobranchus japonicus Hessle, 1917.
Imajima & Hartman 1964. Type locality Japan. Distribution (16)
150-600m.

Octobranchus lingulatus (Grube, 1863) as *Terebella lingulata*.
Langerhans 1884, Marion & Bobretzky 1975, Fauvel 1927. Type locality Mediterranean. Distribution (12).

Octobranchus phyllocomus Hartman, 1952.
Hartman 1966c. Antarctica. Distribution (22) 92m.

(*Octobranchus giardi* Marion & Bobretzky, 1875, see *Octobranchus lingulatus*)

Terebellides Sars, 1835,
type: *Terebellides stroemi* Sars, 1835, monotypic,
synonyms: *Aponobranchus* Gravier, 1905; *Corephorus* Grube, 1846.
Malmgren 1866, Gravier 1915, Hessle 1917, McIntosh 1922, Fauvel 1927,

1933, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a, Williams 1984, Imajima & Williams 1985, Holthe 1986a. Number of valid species 22. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 28).

Terebellides anguicomus F. Müller, 1858.

Synonym: *Terebellides klemani* Kinberg, 1867.

Grube 1872, Hesse 1917. Type locality Brazil. Distribution (8) moderate depths.

Terebellides atlantis Williams, 1984.

Type locality New England continental slope. Distribution (10) 400-508m.

Terebellides bisetosa Hartmann-Schröder, 1965.

Type locality Chile. Distribution (5) 100-240.

Terebellides brevis Imajima & Williams, 1985.

Type locality Japan. Distribution (16) 110-314m.

Terebellides californica Williams, 1984.

Type locality California. Distribution (2, 3) shelf to slope depths.

Terebellides carnea Bobretzky, 1881.

Type locality Black Sea. Distribution (12).

Terebellides distincta Williams, 1984.

Type locality New England continental slope. Distribution (10).

Terebellides ehlersi McIntosh, 1885.

Moore 1923, Caullery 1944, Hartman 1959. Type locality Fiji Islands. Distribution (3, 15, 25) 94-1225m.

Terebellides eurystethus Chamberlin, 1919.

Kirkegaard 1956. Type locality off western Central and South America. Distribution (24, 25) 1424-6720m.

Terebellides horikoshii Imajima & Williams, 1985.

Type locality Japan Distribution (16, 17, 25) 105-1650m.

Terebellides intoshi Caullery, 1915.

Caullery 1944, Imajima & Williams 1985. Type locality East India. Distribution (15, 16, 25) 314-2798m.

Terebellides japonica Moore, 1903, as *Terebellides stroemi japonica*.

Imajima & Williams 1985. Type locality Japan. Distribution (16, 25) 26-1530.

Terebellides kobei Hessle, 1917.

Imajima & Hartman 1964, Imajima & Williams 1985. Type locality Japan. Distribution (16) 7-930.

Terebellides koreni Hansen, 1882.

Type locality Brazil. Distribution (8).

Terebellides lineata Imajima & Williams, 1985.

Type locality Japan. Distribution (16, 25) 314-1650m.

Terebellides lobatus Hartman & Fauchald, 1971.

Type locality West Atlantic. Distribution (8, 28) 520-5007m.

Terebellides longicaudatus Hessle, 1917.

Hartman 1966c. Type locality South Georgia. Distribution (6) 110-500m.

Terebellides moori Hessle, 1917, to replace *Terebellides stroemi*; Moore 1908.

Type locality Alaska. Distribution (2).

Terebellides pacifica Kinberg, 1867.

Type locality Society Islands. Distribution (15) littoral.

Terebellides reishi Williams, 1984.

Type locality California. Distribution (3) shelf depths.

Terebellides stroemi Sars, 1835.

Synonyms: *Aponobranchus perrieri* Gravier, 1905,

Corephorus elegans Grube, 1846,

Terebellides gracilis Malm, 1874,

Terebellides minutus Hessle, 1917,

Terebellides sieboldi, Kinberg, 1867,

Terebella pecten Dallyell, 1853.

Malmgren 1866, Steen 1883, McIntosh 1885, 1915, 1922, Ehlers 1905, Levander 1908, Fauvel 1909, 1927, 1933, Wollebæk 1912, Hessle 1917, Chamberlin 1920, Moore 1923, Augener 1926, Monro 1933, Caulery 1944, Thorson 1946, Wesenberg-Lund 1950a, Ušakov 1955, Hartman 1965b, 1966c, 1969, Imajima & Hartman 1964, Day 1967, Hartmann-Schröder 1971, Fauchald 1977b, Bhaud, Duchêne & Bournol 1978, Duchêne 1977, 1980, Fauchald & Hancock 1981, Michel & al. 1984,

Williams 1984, Imajima & Williams 1985, Holthe 1986a. Type locality Western Norway. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 28) eulittoral to ca 3000m. Remark: the species is under revision (see Williams 1984 and Imajima & Williams 1985), and will probably end up with a much more restricted distribution.

Terebellides stroemi africana Augener, 1918.

Terebellides stroemi kerguelensis McIntosh, 1885.

Synonyms: *Terebellides minutus* Hessle, 1917,

Terebellides antarcticus Hessle 1917.

Monro 1939, Levenstejn 1964, Hartman 1966.

Terebellides ypsilon Grube, 1878.

Williams 1984. Type locality Philippines. Distribution (15).

(*Terebellides antarcticus* Hessle, 1917, see *Terebellides stroemi kerguelensis*)

(*Terebellides gracilis* Malm, 1874, see *Terebellides stroemi*)

(*Terebellides klemani* Kinberg, 1867, see *Terebellides anguicomus*)

(*Terebellides minutus* Hessle, 1917, see *Terebellides stroemi kerguelensis*)

(*Terebellides sieboldi* Kinberg, 1867, see *Terebellides stroemi*)

(*Terebellides stroemi japonica* Moore, 1903, see *Terebellides japonica*)

(*Terebellides tentacula* Treadwell, 1906, see *Melinnopsis tentacula*, AMPHARETIDAE)

(*Terebellides umbella* Grube, 1870, indeterminate)

Trichobranthus Malmgren, 1866,

type: *Trichobranthus glacialis* Malmgren, 1866, monotypic,

synonym: *Filibranthus* Malm, 1874.

Hessle 1917, McIntosh 1922, Fauvel 1927, Ušakov 1955, Hartman 1965b, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1977c, 1986, Imajima & Williams 1985. Number of valid species 6. Distribution (1, 2, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 22, 28).

Trichobranthus alatus Hartmann-Schröder, 1965.

Type locality Chile. Distribution (5) 100-150m.

Trichobranthus americanus Hartman, 1965.

Type locality New England continental slope. Distribution (10, 28) 300-2000m.

Trichobranthus bibranchiatus Moore, 1903.

Hessle 1917, Rullier 1972, Imajima & Williams 1985. Type locality Japan Sea. Distribution (15, 16, 17) 88-1050m.

Trichobranthus glacialis Malmgren, 1866.

Synonym: *Trichobranthus massiliensis* Marion, 1876.

Verrill 1880, Fauvel 1909, 1927, Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Day 1955, 1967, Hartman 1966c, Hartmann-Schröder 1971, Holthe 1986a. Type locality Spitsbergen. Distribution (1, 2, 6, 10, 11, 12, 13, 14, 22, 28) upper sublittoral to 2500m.

Trichobranthus glacialis antarcticus Hessle, 1917. Hartman 1966.

Trichobranthus lobiungens Hessle, 1917

Type locality Uruguay. Distribution (7) 80m.

Trichobranthus roseus (Malm, 1874) as *Filibranthus roseus*.

Wollebæk 1912, Hessle 1917, Thorson 1946, Eliason 1962b, Hartman 1965b, Hartmann-Schröder 1971, Fauchald & Hancock 1981, Holthe 1986a. Type locality Swedish west coast. Distribution (10, 11) 10-500m.

(*Trichobranthus massiliensis* Marion, 1876, see *Trichobranthus glacialis*)

Unobranthus Hartman, 1965,

type: *Unobranthus abyssalis* Hartman, 1965, monotypic.

Fauchald 1977a. Number of valid species 1. Distribution (28).

Unobranthus abyssalis Hartman, 1965.

Hartman & Fauchald 1971. Type locality off New England. Distribution (28) 4800-5023m.

TEREBELLIDAE Grube, 1851

McIntosh 1885, 1922, Gravier 1905a, Benham 1927b, Fauvel 1927, Lindroth 1941, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Fauchald & Jumars 1979, Holthe 1986a. Comprises subfamilies ARTACAMINAE, AMPHITRITINAE, THELEPODINAE, and POLYCIRRINAE. Number of genera described 107, whereof 56 are presently considered valid. Number of valid species 387.

(*Alkmaria* Horst, 1919, see AMPHARETIDAE)

ARTACAMINAE Malmgren, 1866

Ušakov 1955, Hartmann-Schröder 1971, Holthe 1977c, 1986. Number of genera described 2, one is valid and belongs to this family, the other one is also valid but belongs to another family. Number of valid species 8.

Artacama Malmgren, 1866

type: *Artacama proboscidea* Malmgren, 1866

Kinberg 1867, Hessle 1917, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number of valid species 8. Distribution (1, 2, 3, 4, 6, 8, 10, 11, 14, 15, 17, 22).

Artacama benedeni Kinberg, 1867.

Hessle 1917. Type locality Brazil. Distribution (7) 80m.

Artacama canadensis McIntosh, 1915.

Type locality Canadian east coast. Distribution (10).

Artacama challengeriae McIntosh, 1885.

Type locality off Kerguelen. Distribution (22) 46-202m.

Artacama coniferi Moore, 1905.

Moore 1923, Hartman 1969, Fauchald & Hancock 1981. Type locality Strait of Georgia. Distribution (2, 3, 4) 72-340m.

Artacama crassa Hartman, 1967.

Type locality Antarctic Peninsula. Distribution (22) 71-77m.

Artacama globosa Hartman & Fauchald 1971.

Type locality northwest Atlantic. Distribution (28) 1102m.

Artacama proboscidea Malmgren, 1866.

Ssolowiew 1899, Wollebæk 1912, Hessle 1917, Monro 1930, Thorson

1946, Ušakov 1955, Day 1963a, 1967, Hartman 1966c, Hartmann-Schröder 1971, Holthe 1986a. Type locality Spitsbergen. Distribution (1, 6, 10, 11, 14, 17, 22) upper sublittoral to ca 3000m?

Artacama zebuensis McIntosh, 1885.

Type locality off Philippines. Distribution (15) 175m.

(*Artacamella* Hartman, 1955, see TRICHOBRANCHIDAE)

AMPHITRITINAE Malmgren, 1866

Fauvel 1927, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Holthe 1986a. Number of genera described 66, whereof 39 are presently considered valid. Number of valid species 246.

(*Amphiro* Montagu, 1808, see *Amphitrite*)

Amphitrite O.F. Müller, 1771.

type: *Amphitrite cirrata* O.F. Müller, 1771,

synonym: *Amphiro* Montagu, 1808.

Risso 1826, Malmgren 1866, Ives 1911, Hessle 1917, McIntosh 1922, Fauvel 1927, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a, Holthe 1986a. Number of valid species 18. Distribution (1, 2, 3, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 28).

Amphitrite alcicornis Fauvel, 1909.

Type locality off Azores. Distribution (28) 1287m.

Amphitrite attenuata Moore, 1906.

Type locality Massachusetts. Distribution (10).

Amphitrite brunnea (Stimpson, 1854) as *Terebella brunnea*.

Synonyms: *Amphitrite stimpsoni* Meyer, 1912

Terebella elongata Quatrefages, 1865.

Webster & Benedict 1884. Type locality New Brunswick. Distribution (10, 12) littoral to?

Amphitrite chloraema (Schmarda, 1861) as *Terebella chloraema*, (questionable).

Type locality Chile. Distribution (5).

Amphitrite cirrata O.F. Müller, 1771.

Synonyms: *Amphitrite palmata* Moore, 1905

Amphitrite radiata Moore, 1908
Terebella cirrhata Montagu, 1818
Terebella montagui Quatrefages, 1865

Malmgren 1866, Fauvel 1909, 1927, Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, Moore 1923, Thorson 1946, Wesenberg-Lund 1950b, Ušakov 1955, Day 1963b, 1967, Hartman 1966c, 1969, Imajima & Hartman 1964, Hartmann-Schröder 1971, Holthe 1986a.
Type locality Iceland. Distribution (1, 2, 3, 10, 11, 12, 14, 16, 17, 22) lower eulittoral to depths below 2700m.

Amphitrite cirrata profunda Fauvel, 1914

Amphitrite jucunda (Kinberg, 1867) as *Terebella jucunda*.
Type locality Brazil. Distribution (8) 37-55m.

Amphitrite kerguelensis McIntosh, 1876.
Grube 1878a, McIntosh 1879, 1885, Hessle 1917, Benham 1927b?, Levenstejn 1964, Hartman 1966. Type locality Kerguelen. Distribution (5?, 6, 22) 37-640m.

Amphitrite leptobranchia Caullery, 1944.
Type locality East India. Distribution (15) 40-50m.

Amphitrite malayensis Caullery, 1944.
Type locality East India. Distribution (15) 959m.

Amphitrite marchiliensis Hartmann-Schröder, 1965.
Type locality Chile. Distribution (5) 10-170m.

Amphitrite modesta (Quatrefages, 1865) as *Terebella modesta*, (questionable).
Type locality New South Wales. Distribution (19).

Amphitrite nana Claparède in McIntosh, 1922, (perhaps *Neoamphitrite figulus*).
Type locality France. Distribution (12).

Amphitrite oculata Hessle, 1917.
Imajima & Hartman 1964. Type locality Japan. Distribution (16, 17).

Amphitrite ornata (Leidy, 1855) as *Terebella ornata*.
Verrill 1873b, Andrews 1891, Mead 1902, Linville 1902, 1903, Scott 1906, 1909, 1911, Hartman 1945, Weber, Mangum, Steinman, Bonaventura, Sullivan & Bonaventura 1977, Aller & Yingst 1978, Price & Thayer 1983. Type locality Rhode Island. Distribution (9, 10) eulittoral to?

Amphitrite rubra (Risso, 1828) as *Terebella rubra*.

Synonyms: *Amphitrite incana* Claparède, 1870
Amphitrite olfersi Delle Chiaje, 1828
Amphitrite vigintipes Marenzeller, 1884
Terebella compacta Grube, 1863
Terebella multisetosa Grube, 1838
Terebella spiralis Grube, 1860
Terebella vigintipes Grube, 1870

Verrill 1873b, Fauvel 1917, 1927, Hesse 1917, Okuda 1937, Hartman 1945, Imajima & Hartman 1964, Hutchings 1977. Type locality Mediterranean. Distribution (6, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21) shallow water.

Amphitrite scylla (Savigny, 1820) as *Terebella scylla* McIntosh 1922.

Type locality Red Sea. Distribution (15) eulittoral to?

Amphitrite tondi Delle Chiaje, 1828, (perhaps *Axionice flexuosa*). Type locality Gulf of Naples. Distribution (12).

Amphitrite variabilis (Risso, 1826) as *Terebella variabilis*.

Synonym *Terebella viminalis* Grube, 1855.

Hartman 1966c. Type locality Mediterranean. Distribution (6, 12) shallow water.

(*Amphitrite affinis* Malmgren, 1866, see *Neoamphitrite affinis*)

(*Amphitrite affinis antarctica* Monro, 1936, see *Neoamphitrite affinis antarctica*)

(*Amphitrite agilis* Wagner, 1885, indeterminate)

(*Amphitrite auricoma* O.F. Müller, 1776, see *Pectinaria auricoma*, PECTINARIIDAE)

(*Amphitrite auricoma* Fabricius, 1780, see *Pectinaria granulata* PECTINARIIDAE)

(*Amphitrite bifurcata* Moore, 1903, see *Neoamphitrite ramosissima*)

(*Amphitrite birulai* Ssolowiew, 1899, see *Paramphitrite birulai*)

(*Amphitrite bombyx* Dallyell, 1853, see *Branchiomma bombyx* SABELLIDAE)

(*Amphitrite cincinnata* Fabricius, 1780, see *Thelepus cincinnatus*)

(*Amphitrite circinnata* Malmgren, 1866, error for *cincinnata*, see *Thelepus cincinnatus*)

(*Amphitrite cornuta* Bosc, 1902, nomen nudum)

(*Amphitrite cristata* O.F. Müller, 1776, see *Pista cristata*)

(*Amphitrite eschrichtii* Rathke, 1843, see *Pectinaria granulata*, PECTINARIIDAE)

(*Amphitrite flexuosa* Delle Chiaje, 1828, see *Lanice conchilega*)

(*Amphitrite floscula* Dallyell, 1853, see *Myxicola infundibulum*, SABELLIDAE)

- (*Amphitrite grayi* Malmgren, 1866, see *Neoamphitrite grayi*)
(*Amphitrite groenlandica* Malmgren, 1866, see *Neoamphitrite groenlandica*)
(*Amphitrite gunneri* Sars, 1835, see *Amphicteis gunneri*, AMPHARETIDAE)
(*Amphitrite incana* Claparède, 1870, see *Amphitrite rubra*)
(*Amphitrite infundibulum* Montagu, 1808, see *Myxicola infundibulum*, SABELLIDAE)
(*Amphitrite intermedia* Malmgren, 1866, see *Neoamphitrite affinis*)
(*Amphitrite johnstoni* Malmgren, 1866, see *Neoamphitrite figulus*)
(*Amphitrite josephina* Risso, 1826, see *Bispira* or *Spirographis* SABELLIDAE)
(*Amphitrite luna* Dallyell, 1853, indeterminate)
(*Amphitrite meckelii* Delle Chiaje, 1828, questionably *Eupolyornia nebulosa*)
(*Amphitrite neapolitana* Delle Chiaje, 1828, see *Terebella lapidaria*)
(*Amphitrite nesidensis* Delle Chiaje, 1828, see *Eupolyornia nesidensis*)
(*Amphitrite olfersii* Delle Chiaje, 1828, see *Amphitrite rubra*)
(*Amphitrite orotavae* Langerhans, 1881, see *Terebella orotavae*)
(*Amphitrite ostrearia* Cuvier, 1830, see *Sabellaria alveolata*, SABELLARIIDAE)
(*Amphitrite palmata* Malmgren, 1866, see *Neoamphitrite affinis*)
(*Amphitrite palmata* Moore, 1905, see *Amphitrite cirrata*)
(*Amphitrite pauciseta* Day, 1963, see *Paramphitrite pauciseta*)
(*Amphitrite pennacea* Bosc, 1802, nomen nudum)
(*Amphitrite plumosa* Fabricius, 1780, see *Flabelligera affinis* FLABELLIGERIDAE)
(*Amphitrite praecox* Saint-Joseph, 1899, see *Lanassa praecox*)
(*Amphitrite radiata* Moore, 1908, see *Amphitrite cirrata*)
(*Amphitrite ramosa* Risso, 1826, indeterminate, SABELLIDAE)
(*Amphitrite ramosissima* Marenzeller, 1884, see *Neoamphitrite ramosissima*)
(*Amphitrite reniformis* O.F. Müller, 1771, see *Pseudopotamilla reniformis*, SABELLIDAE)
(*Amphitrite robusta* Johnson, 1901, see *Neoamphitrite robusta*)
(*Amphitrite robusta sibogae* Caullery, 1944, see *Neoamphitrite sibogae*)
(*Amphitrite spiralis* Johnson, 1901, see *Neolepraea spiralis*)
(*Amphitrite stimpsoni* Meyer, 1912, see *Amphitrite brunnea*)
(*Amphitrite taurica* Rathke, 1837, see *Sabellaria taurica*, SABELLARIIDAE)
(*Amphitrite ventilabrum* Linnaeus, 1788, questionably SABELLIDAE)
(*Amphitrite ventricosa* Bosc, 1802, indeterminate)
(*Amphitrite vesiculosa* Montagu, 1815, see *Megalomma vesiculosum*, SABELLIDAE)

(*Amphitrite vigintipes* Marenzeller, 1884, see *Amphitrite rubra*)
(*Amphitrite viridis-purpurea* Renier, 1804, see *Flabelligera diplochaitos*, FLABELLIGERIDAE)
(*Amphitrite volutacornis* Montagu, 1804, see *Bispira volutacornis*, SABELLIDAE)

Amphitritides Augener, 1922,
type: *Terebella gracilis* Grube, 1860.
Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number of valid species 3. Distribution 5, 8, 11, 12, 13.

Amphitritides bruneocomata (Ehlers, 1887) as *Terebella bruneocomata*.

Monro 1933. Type locality Southern Florida and West Indies. Distribution (8) littoral

Amphitritides gracilis (Grube, 1860) as *Terebella gracilis*.
McIntosh 1915, Hessle 1917, Fauvel 1927, Hartmann-Schröder 1971, Holthe 1986a. Type locality Mediterranean. Distribution (8, 11, 12, 13) eulittoral to 80m.

Amphitritides pectinobranchiata Hartmann-Schröder, 1965.
Type locality Chile. Distribution (5) 84-240m.

(*Amphitritoides* Costa, 1862, see *Eupolytmia*)
(*Amphitritoides rapax* Costa, 1862, see *Eupolytmia nebulosa*)

(*Amphytrite* Renier, 1804, nomen nudum, see the International Commission on Zoological Nomenclature 1954)

(*Amphytrite alata* Renier, 1804, indeterminate)
(*Amphytrite belgica* Renier, 1804, indeterminate)
(*Amphytrite bicornis* Renier, 1804, indeterminate)
(*Amphytrite conchylega* Renier, 1804, indeterminate)
(*Amphytrite penicillus* Renier, 1804, indeterminate)
(*Amphytrite spiralis* Renier, 1804, indeterminate)

Axionice Malmgren, 1866,
type: *Terebella flexuosa* Grube, 1860,
Synonyms: *Euscione* Chamberlin, 1919; *Scione* Malmgren, 1866;
Melinella McIntosh, 1914, *Parascione* Caullery, 1944.
Caullery 1944, Fauchald 1977a, Holthe 1986a. Number of valid species 7. Distribution (1, 2, 10, 11, 12, 13, 15, 17, 19, 22, 24).

Axionice abyssorum (Caullery, 1944) as *Scione (Parascione) abyssorum*.

Type locality Malay Archipelago. Distribution (24) 1570-1788m.

Axionice albumaculata (Caullery, 1944) as *Scione albumaculata*.
Type locality Malay Archipelago. Distribution (15) 27m.

Axionice flexuosa (Grube, 1860) as *Terebella flexuosa*.
Malmgren 1866, Wollebæk 1912, Wesenberg-Lund 1950a, Ušakov 1955,
Hartmann-Schröder 1971, Holthe 1986aa. Type locality Spitsbergen.
Distribution (1, 2, 10, 11, 17) 17-215m.

Axionice harrisoni (Benham, 1916) as *Scione harrisoni*.
Knox & Cameron 1971. Type locality South Australia. Distribution
(19) 55m.

Axionice maculata (Dallyell, 1853) as *Terebella maculata*.

Synonyms: *Melinella macduffi* McIntosh, 1814

Scione lobata Malmgren, 1866.

St Joseph 1894, Wollebæk 1912, Hessle 1917, Fauvel 1927, Wesen-
berg-Lund 1950a, Ušakov 1955, Hartmann-Schröder 1971, Fournier
& Pocklington 1984, Holthe 1986a. Type locality Scotland. Dis-
tribution (1, 10, 11, 12, 13, 17) upper sublittoral to ca 1000m.

Axionice moorei (Caullery, 1944) as *Scione moorei*.
Type locality Malay Archipelago. Distribution (15) 18m.

Axionice spinifera (Ehlers, 1912) as *Scione spinifera*.
Fauvel 1909, Hartman 1966c, 1978. Type locality Bouvet Island.
Distribution (22) 120-463m.

Baffinia Wesenberg-Lund, 1950,
type: *Baffinia multisetosa* Wesenberg-Lund, 1950, monotypic.
Fauchald 1977a, Fournier & Barrie 1984, Holthe 1986a. Number of
valid species 1. Distribution (1, 11, 17).

Baffinia hesslei (Annenkova, 1924) as *Terebella hesslei*.

Synonym: *Baffinia multisetosa* Wesenberg-Lund, 1950.

Annenkova 1925, Fournier & Barrie 1984, Holthe 1986a. Type locali-
ty Bering Sea. Distribution (1, 11, 17) 3-740m.

(*Baffinia multisetosa* Wesenberg-Lund, 1950 see *Baffinia hesslei*)

Bathya Saint-Joseph, 1894,
type: *Leaena abyssorum* McIntosh, 1885.
Fauchald 1977a. Number of valid species 3. Distribution (24, 25).

Bathya abyssorum (McIntosh, 1885) as *Leaena abyssorum*.
Type locality middle of the Pacific. Distribution (25) 5750m.

Bathya neozelaniae (McIntosh, 1885) as *Leaena neo-zelaniae*.
Type locality South Pacific. Distribution (24) 2024m.

Bathya sarsi (McIntosh, 1885) as *Lanassa sarsi*.
Type locality off Northern New Zealand. Distribution (24) 1288m.

Betapista Banse, 1980,
type: *Betapista dekkeræ* Banse, 1980, monotypic.
Number of valid species 1. Distribution (2).

Betapista dekkeræ Banse, 1980.
Type locality British Columbia. Distribution (2) 25-35m.

Colymmatops Peters, 1854,
type: *Colymmatops granulatus* Peters, 1854, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (15).

Colymmatops granulatus Peters, 1854.
Type locality Mozambique. Distribution (15).

(*Dendrobranchus* Wagner, 1885, nomen nudum)
(*Dendrobranchus boreale* Wagner, 1885, indeterminate)

(*Dendrophora* Grube, 1870, see *Pista*)
(*Dendrophora fasciata* Grube, 1870, see *Pista fasciata*)

(*Ehlersiella* McIntosh, 1885, indeterminate)
(*Ehlersiella atlantica* McIntosh, 1885, indeterminate)
(*Ehlersiella hirsuta* Roule, 1896, indeterminate)

(*Eupista* McIntosh, 1885, HOMONYM, see *Eupistella*)
(*Eupista darwini* McIntosh, 1885, see *Eupistella darwini*)
(*Eupista dibranchiata* Fauvel, 1909, see *Eupistella dibranchiata*)
(*Eupista digitibranchia* Caullery, 1944, see *Eupistella digitibranchia*)
(*Eupista grubei* McIntosh, 1885, see *Eupistella grubei*)

Eupistella Chamberlin, 1919,
type: *Eupista darwini* McIntosh, 1885,
synonym: *Eupista* McIntosh, 1885.
Hessle 1917, Caullery 1944, Fauchald 1977a. Number of valid species
4. Distribution (12, 15, 22, 24, 26, 27, 28).

Eupistella darwini (McIntosh, 1885) as *Eupista darwini*.
Type locality off Chile. Distribution (24) 4094m.

Eupistella dibranchiata (Fauvel, 1909) as *Eupista dibranchiata*.
Caullery 1944. Type locality off Madeira. Distribution (12, 28)
885-1425m.

Eupistella digitibranchia (Caullery, 1944) as *Eupista digiti-*
branchia.
Type locality East India. Distribution (15) 216-924m.

Eupistella grubei (McIntosh, 1885) as *Eupista grubei*.
Levenstejn 1964, Hartman 1966c, 1978. Type locality South Atlantic
(22, 26, 27). Distribution 430-4876m.

Eupolyornia Verrill, 1900, replacing *Polymnia* Malmgren, 1867,
type: *Amphitrite nesidensis* Delle Chiaje, 1828.
synonyms: *Polymnia* Malmgren, 1867; *Amphitritoides* Costa, 1862.
Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Day 1967, Hartmann-
Schröder 1971, Fauchald 1977a, Holthe 1986a. Number of valid species
18. Distribution (1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 13, 14, 15, 16,
17, 18, 19, 22, 24).

Eupolyornia boniniana (Hessle, 1917) as *Polymnia boniniana*.
Type locality South Pacific. Distribution (15), bathymetric dis-
tribution unknown.

Eupolyornia capensis (McIntosh, 1924) as *Polymnia capensis*.
Type locality South Africa. Distribution (14).

Eupolyornia congruens (Marenzeller, 1884) as *Polymnia congruens*.
Imajima & Hartman 1964, Hartman 1969. Type locality Japan. Dis-
tribution (2, 3, 15, 16) eulittoral to 600m.

Eupolyornia crassicornis (Schmarda, 1861) as *Terebella crassicornis*.
Synonym: *Terebella turgidula* Ehlers, 1887.
McIntosh 1885, Hessle 1917, Augener 1925b. Type locality West
Indies. Distribution (8).

Eupolyornia crescentis Chamberlin, 1919
Hartman 1969. Type locality Crescent City. Distribution (2, 3, 4)
eulittoral.

Eupolyornia dubia (Caullery, 1944) as *Polymnia dubia*.
Type locality Malay Archipelago. Distribution (15) 9-45m.

Eupolyornia heterobranchia (Johnson, 1901) as *Lanice heterobranchia*.
Hessle 1917, Dales 1961, Banse 1980. Type locality Washington.
Distribution (2, 3, 4).

Eupolyommia insulana Chamberlin, 1919.

Type locality off Galapagos. Distribution (5) 552m.

Eupolyommia intoshi (Caulley, 1944) as *Polymnia intoshi*

Malay Archipelago. Distribution (15) littoral to 80m.

Eupolyommia kermadecensis (McIntosh, 1885) as *Terebella kermadecensis*.

Type locality Kermadec Islands. Distribution (24) 1104m.

Eupolyommia labiata (Willey, 1905) as *Polymnia labiata*.

Type locality India. Distribution (15).

Eupolyommia marenzelleri (Caulley, 1944) as *Polymnia marenzelleri*.

Type locality Malay Archipelago. Distribution (15) 27-73m.

Eupolyommia nebulosa (Montagu, 1818) as *Terebella nebulosa*.

Synonyms: *Amphitrite meckeli* Delle Chiaje, 1828?

Amphitritoides rapax Costa, 1862,

Pallonia rapax Costa, 1862,

Pista cristata occidentalis Bidentkap in Nordgaard, 1907,

Terebella debilis Malmgren, 1866,

Terebella tuberculata Dalryell, 1853,

Milne Edwards 1838, Malmgren 1866, Wollebæk 1912, Southern 1914, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927, 1933, Strunk 1930, Monro 1933, Day 1955, 1967, Imajima & Hartman 1964, Hartmann-Schröder 1965, 1971, Hartman 1966c, Rullier 1972, Fauchald 1977b, Lang 1984, Holthe 1986a. Type locality England. Distribution (4, 5, 6, 8, 11, 12, 14, 15, 17, 18, 19, 22) eulittoral to ca 500m.

Eupolyommia nesidensis (Delle Chiaje, 1828) as *Amphitrite nesidensis*.

Synonyms: *Polymnia viridis* Malm, 1874?

Terebella abbreviata Quatrefages, 1865,

Terebella danielseni Malmgren, 1866,

Terebella flavescens Clapaerède, 1870,

Terebella lutea Grube, 1855.

Langerhans 1884, Wollebæk 1912, Southern 1914, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927, Hartmann-Schröder 1971, Holthe 1986a. Type locality Mediterranean. Distribution (1, 3, 10, 11, 12, 13, 17) eulittoral to ca 300m.

Eupolyommia nesidensis japonica (Moore, 1903) as *Polymnia nesidensis japonica*.

Moore 1923.

Eupolyommia regnans Chamberlin, 1919.

Monro 1933, Fauchald 1977b. Type locality Perico Island, Panama.
Distribution (4) lowest eulittoral.

Eupolymnia robusta (Caullery, 1944) as *Polymnia robusta*.
Type locality Aru Island. Distribution (15) 13m.

Eupolymnia trigonostoma (Schmarda, 1861) as *Terebella trigonostoma*.
Synonyms: *Polymnia triplicata* Wiley, 1905,
Terebella grubei McIntosh, 1885,
Hessle 1917, Levenstejn 1964. Type locality New South Wales. Dis-
tribution (15?, 18, 19) eulittoral to 600m.

Eupolymnia triloba (Fischli, 1903) as *Lanice triloba*.
Hessle 1917. Type locality Ternate, Indian Ocean. Distribution
(15).

(*Eupolymnia (Polymniella) aurantiaca* Verrill, 1900, see
Polymniella aurantiaca)

(*Euscione* Chamberlin, 1919, see *Axionice*)

Hadrachaeta Hutchings, 1977,
type: *Hadrachaeta aspeta* Hutchings, 1977, monotypic.
Number of valid species 1. Distribution (18).

Hadrachaeta aspeta Hutchings, 1977.
Type locality New South Wales. Distribution (18) littoral.

(*Heterophyselia* Quatrefages, 1866, see *Terebella*)
(*Heterophyselia bosci* Quatrefages, 1866, see *Terebella lapidaria*)

(*Heteroterebella* Quatrefages, 1866, see *Terebella*)
(*Heteroterebella sanguinea* Claparède, 1870, see *Terebella
lapidaria*)

(*Idalia* Quatrefages, 1865, HOMONYM, see *Pista*)
(*Idalia vermiculus* Quatrefages, 1865, see *Pista cristata*)

Lanassa Malmgren, 1866,
type: *Lanassa nordenskiöldi* Malmgren, 1866,
synonyms: *Laphaniella* Malm, 1874; *Pherea* Saint-Joseph, 1894.
Hessle 1917, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald
1977a, Holthe 1986a. Number of valid species 6. Distribution (1, 2, 3,
10, 11, 12, 14, 17, 28).

Lanassa benthaliana McIntosh, 1885.
Hessle 1917. Type locality Mid-Atlantic Ocean. Distribution (28)
5060m.

Lanassa capensis Day, 1955.

Day 1967. Type locality South Africa. Distribution (14).

Lanassa gracilis (Moore, 1923) as *Leaena gracilis*.

Hartman 1969. Type locality California. Distribution (3) 375-440m.

Lanassa nordenskiöldi Malmgren, 1866.

Wollebæk 1912, McIntosh 1915, Hessle 1917, Ušakov 1955, Holthe 1986. Type locality Spitsbergen. Distribution (1, 10, 11, 17) 15-100m.

Lanassa praecox (Saint-Joseph, 1899) as *Amphitrite praecox*.

Fauvel 1927. Type locality France. Distribution (12) 17-20m.

Lanassa venusta (Malm, 1874) as *Laphaniella venusta*.

Wollebæk 1912, Hessle 1917, Ušakov 1955, Hartmann-Schröder 1971, Banse 1980, Fournier & Pocklington 1984, Holthe 1986a. Type locality Swedish west coast. Distribution (1, 2, 11, 12, 17) moderate depths.

Lanassa venusta pacifica Annenkova, 1938.

(*Lanassa sarsi* McIntosh, 1885, see *Bathya sarsi*)

Lanice Malmgren, 1866,

type: *Nereis conchilega* Pallas, 1766,

synonym: *Wartelia* Giard, 1878.

Nordenskiöld 1901, Hessle 1917, McIntosh 1922, Fauvel 1927, Caullery 1944, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a, Holthe 1986a. Number of valid species 8. Distribution (3, 6, 7, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22).

Lanice abyssalis Caullery, 1944.

Type locality East India. Distribution (15) 959m.

Lanice caulleryi, new name replacing *Lanice fauveli* Caullery, 1944, primary homonym.

Type locality East India. Distribution (15) 387m.

Lanice conchilega (Pallas, 1766).

Synonyms: *Amphitrite flexuosa* Delle Chiaje, 1828,

Terebella artifex Sars, 1863,

Terebella littoralis seu *arenaria* Dalyell, 1853,

Terebella pectoralis Quatrefages, 1865,

Terebella prudens Quatrefages, 1865,

Wartelia gonotheca Giard, 1878.

Malmgren 1866, Cunningham 1887, Watson 1890, 1916a, Elrington 1908,

1909, Wollebæk 1912, McIntosh 1915, 1922, Augener 1918, 1926, Strunk 1930, Dehorne 1922, 1935, Thorson 1946, Defretin 1950, 1952, Seilacher 1951, Ziegelmeier 1952, 1969, Kessler 1963, Hartman 1966a, 1969, Day 1967, Wunderlich 1970, Bielakoff, Damas & Vovelle 1975, Buhr 1976, 1979, Schulte & Riehl 1976, Buhr & Winter 1977, Hutchings 1977, Holthe 1986a. Type locality Holland. Distribution (3, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21) eulittoral to 1700m?

Lanice fauvelii Day, 1934 (perhaps *Loimia medusa*).
Type locality Agulhas Bank. Distribution (14).

Lanice flabellum (Baird, 1865) as *Terebella flabellum*.
Hessle 1917, Hartman 1966, 1967. Type locality Antarctica. Distribution (6, 15, 18, 20, 22) 146-205m.

Lanice seticornis (McIntosh, 1885) as *Terebella (Lanice) seticornis*, described from a single tube only.
Watson 1916b.
Type locality Argentina. Distribution (7) 39m.

Lanice socialis (Willey, 1905) as *Polymnia socialis*.
Imajima & Hartman 1964. Type locality Ceylon. Distribution (15, 16) moderate depths.

Lanice wollebaeki Caullery, 1944.
Day 1951.
Type locality off Malaya. Distribution (14, 15) 36m.

(*Lanice expansa* Treadwell, 1906, see *Pista expansa*)
(*Lanice fauveli* Caullery, 1944, primary homonym, see *Lanice caulleryi*)
(*Lanice haitiana* Augener, 1922, see *Loimia medusa*)
(*Lanice heterobranchia* Johnson, 1901, see *Eupolymnia heterobranchia*)
(*Lanice triloba* Fischli, 1903, see *Eupolymnia triloba*)

Lanicides Hessle, 1917,
type: *Terebella (Phyzelia) bilobata* Grube, 1877.
Fauchald 1977a. Number of valid species 3. Distribution (4, 6, 8, 22).

Lanicides bilobata (Grube, 1877) as *Terebella (Phyzelia) bilobata*.
Hessle 1917, Hartman 1966c, Averincev 1982. Type locality Strait of Magellan. Distribution (6, 22) 6-380m.

Lanicides taboguillae (Chamberlin, 1919) as *Nicolea taboguillae*.
Synonyms: *Nicolea bilobata antillensis* Augener, 1922,
Nicolea cetrata galapagensis Augener, 1922,

Nicolea galapagensis Chamberlin, 1919.
Chamberlin 1919c, Monro 1933, Fauchald 1977b. Type locality Pacific coast of Panama. Distribution (4, 8) eulittoral to 11m.

Lanicides vayssierei (Gravier, 1911) as *Terebella (Phyzelia) vayssierei*.
Hessle 1917, Benham 1927. Type locality Antarctica. Distribution (6, 22) eulittoral to 310m.

Laphania Malmgren, 1866,
type: *Laphania boeckii* Malmgren, 1866, monotypic.
Hessle 1917, McIntosh 1922, Ušakov 1955, Fauchald 1977a, Banse 1980, Holthe 1986a. Number of valid species 1. Distribution (1, 2, 11, 17, 28).

Laphania boeckii Malmgren, 1866.
Wollebak 1912, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927, Ušakov 1955, Hartman 1965b, Banse 1980, Holthe 1986a. Type locality Finnmark, Norway. Distribution (1, 2, 11, 17, 28) eulittoral to 4667m.

Laphania boeckii hystericis McIntosh, 1915.

(*Laphaniella* Malm, 1874, see *Lanassa*)
(*Laphaniella venusta* Malm, 1874, see *Lanassa venusta*)

Leaena Malmgren, 1866,
type: *Terebella ebranchiata* Sars, 1865.
Hessle 1917, Ušakov 1955, Day 1967, Fauchald 1977a, Holthe 1986. Number of valid species 12. Distribution (2, 3, 15, 22, 24, 25, 26, 28).

Leaena antarctica McIntosh, 1885.
Hessle 1917, Levenstejn 1964, Hartman 1966c. Type locality Antarctic Ocean. Distribution (22, 26) 13-3634m.

Leaena arenilega Ehlers, 1913 (perhaps *Leaena wandelensis*).
Hessle 1917, Hartman 1966c. Type locality Antarctica. Distribution (22) 28-385m.

Leaena caeca Hartman, 1960 .
Hartman 1969. Type locality California. Distribution (25) 1140m.

Leaena collaris Hessle, 1917.
Hartman 1966c, Averincev 1982. Type locality South Georgia. Distribution (22) 95-270m.

Leaena ebranchiata (Sars, 1865) as *Terebella ebranchiata*.
Synonym: *Leaena abranchiata* Malmgren, 1866.

Wollebak 1912, Hessle 1917, Wesenberg-Lund 1950a, Ušakov 1955, Holthe 1986a. Type locality Norway. Distribution (1, 2, 6, 10, 11, 17, 22) 5-1500m.

Leaena langerhansi McIntosh, 1885.

Type locality off New Zealand. Distribution (24) 2024m.

Leaena minima Hartman, 1965, as *Leaena collaris minima*.

Hartman & Fauchald 1971. Type locality off New England. Distribution (28) 1102-2864m.

Leaena minuta Hartman, 1954.

Type locality North Marshall Islands. Distribution (15) shallow water.

Leaena nuda Moore, 1905, (perhaps *Lanassa* sp.).

Type locality Kadiak Island, Alaska. Distribution (2) 53m.

Leaena pseudobranchia Levenstejn, 1964.

Hartman 1966c. Type locality Antarctic. Distribution (22) 206m.

Leaena videns Chamberlin, 1919.

Hartman 1969. Type locality California. Distribution (3) eulittoral.

Leaena wandelensis Gravier, 1907.

Benham 1927, Levenstejn 1964, Hartman 1966c. Type locality Antarctica. Distribution (22) 32-184m.

(*Leaena abranchiata* Malmgren, 1866, see *Leaena ebranchiata*)

(*Leaena abyssorum* McIntosh, 1885, see *Bathya abyssorum*)

(*Leaena gracilis* Moore, 1923, see *Lanassa gracilis*)

(*Leaena graffi* Langerhans, 1884, see *Proclea graffi*)

(*Leaena neo-zelaniae* McIntosh, 1885, see *Bathya neozelaniae*)

(*Leaena oculata* Langerhans, 1881 see *Phisidia oculata*)

(*Leprea* Malmgren, 1866, see *Terebella*)

(*Leprea abyssicola* Verrill, 1885, see *Terebella abyssicola*)

(*Leprea ceratobranchia* Caullery, 1944, see *Terebella ceratobranchia*)

(*Leprea haplochaeta* Ehlers, 1905, see *Terebella haplochaeta*)

(*Leprea inversa* Willey, 1905, see *Terebella*, perhaps *Terebella ehrenbergi*)

(*Leprea rubra* Verrill, 1873, see *Terebella verrilli*, HOMONYM)

(*Leprea streptochoeta* Ehlers, 1897, see *Neoleprea streptochoeta*)

(*Leprea verrucosa* Caullery, 1944, see *Terebella verrucosa*)

(*Leprea (Terebella) lapidaria* Augener, 1918, see *Terebella schmardaei*)

(*Leprea (Terebella) lapidaria juanensis* Augener, 1922, see *Terebella lapidaria juanensis*)

Loimia Malmgren, 1866,

type: *Terebella medusa* Savigny, 1818.

Hessle 1917, McIntosh 1922, Fauvel 1933, Caullery 1944, Hartman 1945, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a. Number of valid species 16. Distribution (3, 4, 8, 9, 10, 12, 13, 14, 15, 16, 18).

Loimia annulifilis (Grube, 1878) as *Terebella annulifilis*.

Caullery 1944, Fauvel 1933, Fauchald 1977b. Type locality Philippines. Distribution (15) eulittoral.

Loimia arborea Moore, 1923, (perhaps *Loimia medusa*).

Imajima & Hartman 1964. Type locality Japan. Distribution (16) 24-30m.

Loimia contorta (Ehlers, 1912) as *Terebella (Loimia) contorta*.

Type locality Somaliland. Distribution (15) 74lm.

Loimia crassifilis (Grube, 1878) as *Terebella crassifilis*.

Treadwell 1906, Caullery 1944, Hartman 1966. Type locality Philippines. Distribution (15) 52-80m.

Loimia decora Pillai, 1961.

Type locality Tambalagam Lake, Ceylon. Distribution (15).

Loimia grubei, new name, replacing *Terebella montagui* Grube, 1878 (primary homonym of *Terebella montagui* Quatrefages, 1865, and secondary homonym in combination with *Loimia* (by Hartman 1959)).

Caullery 1944, Wiktor 1980. Type locality Philippine Islands. Distribution (15) shallow water.

Loimia ingens (Grube, 1878) as *Terebella ingens*.

Caullery 1944, Hartman 1966d, Hutchings 1977. Type locality Philippines. Distribution (15) shallow water.

Loimia medusa (Savigny, 1818) as *Terebella medusa*.

Synonyms: *Lanice haitiana* Augener, 1922,

Loimia bermudensis Verrill, 1900,

Loimia minuta Treadwell, 1929.

Fauvel 1901, 1914a, 1953, St. Joseph 1901, Gravier 1905a, Augener 1918, Potts 1928, Wilson 1928, Monro 1933, Hartman 1945, 1956, 1966c, 1969, Day 1951, 1967, Imajima & Hartman 1964, 1969, Hartmann-Schröder 1964, 1971, Gibbs 1971, Rullier 1972, Hutchings 1977, Fauchald 1977b. Type locality Red Sea. Distribution (3, 4, 8, 8, 9, 12, 13, 14, 15, 16, 18) eulittoral to 160m.

Loimia medusa annulifilis (Grube, 1878) as *Terebella annulifilis*.

Loimia grubei, new name replacing *Terebella montagui* Grube, 1878 (primary homonym of *Terebella montagui* Quatrefages, 1865, and secondary homonym in combination with *Loimia* by Hartman 1959)). Caullery 1944, Wiktor 1980. Type locality Philippine Islands. Distribution (15) shallow water.

Loimia nigrifilis Caullery, 1944.
Type locality Amboina and Celebes. Distribution (15) shallow water.

Loimia ochracea (Grube, 1878) as *Terebella (Loimia) ochracea*.
Type locality Northwestern Australia. Distribution (15).

Loimia savignyi McIntosh, 1885.
Type locality Cape Verde Islands. Distribution (13, 15).
Loimia savignyi trussanica Annenkova, 1925.

Loimia turgida Andrews, 1892, perhaps (*Loimia medusa*).
Type locality North Carolina. Distribution (9).

Loimia variegata (Grube, 1870) as *Terebella variegata*.
Type locality Philippines. Distribution (15).

Loimia verrucosa Caullery, 1944.
Type locality Malay Archipelago. Distribution (15) shallow water.

Loimia viridis Moore, 1903.
Hartman 1945. Type locality Massachusetts. Distribution (9, 10) sublittoral.

(*Loimia bermudensis* Verrill, 1900, see *Loimia medusa*)
(*Loimia minuta* Treadwell, 1929, see *Loimia medusa*)
(*Loimia montagui* (Grube, 1878) as *Terebella montagui*, primary and secondary HOMONYM, see *Loimia grubei*)
(*Loimia montagui* McIntosh, 1922, replacing *Terebella constrictor* Montagu, 1818, see *Terebella lapidaria*)

Longicarpus Hutching & Murray, 1984,
type *Longicarpus glandularis* Hutchings & Murray, 1984.
Number of valid species 1. Distribution (18).

Longicarpus glandularis Hutchings & Murray, 1984.
Type locality New South Wales. Distribution (18).

(*Melinella* McIntosh, 1914, see *Axionice*)

(*Melinella macduffi* McIntosh, 1914, see *Axionice maculata*)

Naneva Chamberlin, 1919,

type: *Naneva hespera* Chamberlin, 1919, monotypic.

Fauchald 1977. Number of valid species 1. (Distribution 3).

Naneva hespera Chamberlin, 1919.

Hartman 1969. Type locality Southern California. Distribution (3) eulittoral.

Neoamphitrite Hessle, 1917.

type: *Amphitrite affinis* Malmgren, 1866.

Ušakov 1955, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986.

Number of valid species 9. Distribution (1, 2, 3, 4, 6, 8, 10, 11, 12, 13, 15, 16, 17, 21, 22).

Neoamphitrite affinis (Malmgren, 1866) as *Amphitrite affinis*.

Synonyms: *Amphitrite intermedia* Malmgren, 1866,

Amphitrite palmata Malmgren, 1866,

Terebella gigantea Quatrefages, 1865.

Wollebæk 1912, Southern 1914, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927, Wesenberg-Lund 1950a, Hartmann-Schröder 1971, Holthe 1986a. Type locality Spitsbergen. Distribution (1, 6, 10, 11, 21, 22) 15-600m.

Neoamphitrite affinis antarctica (Monro, 1936) as *Amphitrite affinis antarctica*. Hartman 1966.

Neoamphitrite edwardsi (Quatrefages, 1865) as *Terebella edwardsii*.

St Joseph 1894, Fauvel 1927, Imajima & Hartman 1966. Type locality France. Distribution (2, 6, 8, 11, 12, 13, 17).

Neoamphitrite figulus (Dallyell, 1853) as *Terebella figulus*.

Synonym: *Amphitrite johnstoni* Malmgren, 1866.

Cunningham & Ramage 1888, Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927, Annenkova 1938, Thomas 1940, Ušakov 1955, Kennedy & Dales 1968, Dales & Pell 1970, Hartmann-Schröder 1971, Braunbeck & Dales 1985, Holthe 1986a. Type locality Great Britain. Distribution (10, 11, 12, 17) eulittoral to ca 100m.

Neoamphitrite figulus pacifica Annenkova, 1925.

Neoamphitrite grayi (Malmgren, 1866) as *Amphitrite grayi*.

Wollebæk 1912, Hessle 1917, Ušakov 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Swedish West Coast. Distribution (1, 10, 11, 17) 20-500m.

Neoamphitrite groenlandica (Malmgren, 1866) as *Amphitrite groenlandica*.

Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927,

Wesenberg-Lund 1950a, Ušakov 1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Greenland. Distribution (1, 2?, 10, 11, 17) 50-800m.

Neoamphitrite ramosissima (Marenzeller, 1885) as *Amphitrite ramosissima*.

Synonym: *Amphitrite bifurcata* Moore 1903.

Hessle 1917, Imajima & Hartman 1964. Type locality Japan. Distribution (16?, 17) 30-600m.

Neoamphitrite robusta (Johnson, 1901) as *Amphitrite robusta*.

Synonym: *Scionodes dux* Chamberlin, 1919.

Moore 1923, Dales 1961, Hartman 1969, Brown & Ellis 1971, Banse 1980. Type locality Washington. Distribution (2, 3, 4) littoral to 313m.

Neoamphitrite sibogae (Caullery, 1944) as *Amphitrite robusta sibogae*.

Type locality Malay Archipelago. Distribution (15) 538m.

Neoamphitrite vigintipes (Grube, 1870) as *Terebella vigintipes*.

Hessle 1917, Augener 1926. Type locality Japan. Distribution (16) 1-92m.

Neoleprea Hessle, 1917,

type: *Leprea streptochoeta* Ehlers, 1897.

Fauchald 1977a, Banse 1980. Number of valid species 5. Distribution (2, 3, 6, 15, 16, 17, 22).

Neoleprea amoyensis Monro, 1934.

Type locality China. Distribution (15).

Neoleprea californica (Moore, 1904), as *Terebella (Schmardanella) californica*.

Banse 1980. Type locality California. Distribution (2, 3, 17).

Neoleprea japonica Hessle, 1917.

Imajima & Hartman 1964, Banse 1980. Type locality Japan. Distribution (2, 16) 27-500m.

Neoleprea spiralis (Johnson, 1901) as *Amphitrite spiralis*.

Hessle 1917, Hartman 1969, Banse 1980. Type locality Washington. Distribution (2, 3) littoral.

Neoleprea streptochoeta (Ehlers, 1897) as *Leprea streptochoeta*.

Hessle 1917, Hartman 1966c. Type locality Patagonia. Distribution (6, 17, 22) eulittoral to 270m.

Nicolea Malmgren, 1866,
type: *Terebella zostericola* Ørsted, 1844,
synonyms: *Thelepella* Chamberlin, 1919; *Phyzelia* SchmarDA, 1861.
Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Ušakov 1955, Day
1967, Hartmann-Schröder 1971, Fauchald 1977c, Holthe 1986a. Number of
valid species 22. (Distribution 1, 2, 5, 8, 10, 11, 12, 14, 15, 16,
17, 18, 19, 21, 24).

Nicolea ammis Hutchings & Murray, 1984.
Type locality New South Wales. Distribution (18) 10-20m.

Nicolea angustiscutis Caullery, 1944.
Type locality Malay Archipelago. Distribution (15) shallow water.

Nicolea cetrata (Ehlers, 1887) as *Terebella cetrata*.
Type locality Southern Florida. Distribution (8, 14, 19).

Nicolea chilensis (SchmarDA, 1861) as *Phyzelia (Terebella) chilensis*.

Synonym: *Phyzelia agassizi* Kinberg, 1867.
Willey 1902, Hessle 1917, Augener 1926, Levenstejn 1964, Hartmann-
Schröder 1965, Hartman 1966c, Rullier 1972. Type locality Chile.
Distribution (5, 19, 21) eulittoral to 138m.

Nicolea claparedi (Grube, 1878) as *Terebella claparedi*.
Wiktor 1980. Type locality Philippines. Distribution (15).

Nicolea gracilibranchis (Grube, 1878) as *Terebella gracilibranchis*.
Marenzeller 1884, Treadwell 1906, Hessle 1917, Fauvel 1933, 1936a,
Okuda & Yamada 1954, Ušakov 1955, Imajima & Hartman 1964, Hartman
1966a, Rullier 1972, Wiktor 1980. Type locality Philippines. Dis-
tribution (15, 16, 17) eulittoral to 150m.

Nicolea gracilicauda (Kinberg, 1867) as *Terebella gracilicauda*.
Type locality Tahiti. Distribution (15) littoral.

Nicolea incerta Caullery, 1944.
Type locality East India. Distribution (15) 0-22m.

Nicolea koehleri Caullery, 1944.
Type locality Borneo. Distribution (15) 40-50m.

Nicolea latens Chamberlin, 1919.
Fauchald 1972a. Type locality Gulf of California. Distribution
(24) 1580m.

Nicolea lobulata Hartmann-Schröder, 1965, (questionably *Nicolea*).
Type locality Chile. Distribution (5) 50-60m.

Nicolea longibranchia Caullery, 1944.

Type locality Malay Archipelago. Distribution (15) 69-91m.

Nicolea macrobranchia (Schmarda, 1861) as *Terebella macrobranchia*.

Augener 1918, Day 1967. Type locality South Africa. Distribution (14) eulittoral and sublittoral.

Nicolea maxima Augener, 1923.

Augener 1926. Type locality Akaroa harbour, New Zealand. Distribution (21) 11m.

Nicolea profundis Chamberlin, 1919.

Type locality Off Peru. Distribution (24) 1906m.

Nicolea schmardai, new name replacing *Phyzelia viridis*.

Schmarda, 1861, secondary homonym in combination with *Nicolea*. Hessle 1917. Type locality Ceylon. Distribution (15).

Nicolea simplex Verrill, 1873 (perhaps *Nicolea zostericola*).

Type locality New England. Distribution (10).

Nicolea sinensis Fauvel, 1932.

Type locality China. Distribution (15).

Nicolea venustula (Montagu, 1818) as *Terebella venustula*.

Synonyms: *Terebella parva* Leuckart, 1849,

Terebella vestita Claparède, 1870.

Fauvel 1909, 1927, McIntosh 1915, 1922, Hessle 1917, Herpin 1925b, Thorson 1946, Wesenberg-Lund 1950a, Day 1967, Hartmann-Schröder 1971, Holthe 1986a. Type locality England. Distribution (1, 11, 12, 14, 15) upper sublittoral to ca 700m.

Nicolea venustula africana Augener, 1918.

Nicolea viridis Webster & Benedict, 1884.

Type locality Massachusetts. Distribution (10) lower eulittoral.

Nicolea willeyi Caullery, 1944.

Type locality Malay Archipelago. Distribution (15) 27-36m.

Nicolea zostericola (Ørsted, 1844). As *Terebella zostericola*.

Synonym: *Nicolea arctica* Malmgren, 1866.

Grube 1860, Willemoes-Suhm 1871, Wollebæk 1912, Herpin 1925a, 1925b, Fauvel 1927, Thorson 1946, Usakov 1955, Hartmann-Schröder 1971, Eckelbarger 1974, 1975, 1976, Holthe 1986a. Type locality Denmark. Distribution (1, 2, 10, 11, 12?, 17) eulittoral to ca 500m.

(*Nicolea arctica* Malmgren, 1866, see *Nicolea zostericola*)
(*Nicolea bilobata antillensis* Augener, 1922, see *Lanicides taboguillae*)
(*Nicolea cetrata galapagensis* Augener, 1933, see *Lanicides taboguillae*)
(*Nicolea galapagensis* Chamberlin, 1919, see *Lanicides taboguillae*)
(*Nicolea modesta* Verrill, 1901, indeterminable)
(*Nicolea quadrilobata* Augener, 1918, see *Pista quadrilobata*)
(*Nicolea synbranchiata* Ehlers, 1913, see *Pista corrientis*)
(*Nicolea taboguillae* Chamberlin, 1919, see *Lanicides taboguillae*)
(*Nicolea viridis* (Schmarda, 1861) secondary homonym, see *Nicolea schmardai*)

(*Odysseus* Kinberg, 1867, indeterminable)
(*Odysseus virginii* Kinberg, 1867, indeterminable)

Opisthopista Caullery, 1944,
type: *Opisthopista sibogae* Caullery, 1944, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (15).

Opisthopista sibogae Caullery, 1944.
Type locality Sumba Strait. Distribution (15) 959m.

(*Otanes* Kinberg, 1867, see *Pista*)
(*Otanes americanus* Kinberg, 1867, see *Pista americana*)

Paralanice Caullery, 1944,
type: *Paralanice timorensis* Caullery, 1944, monotypic.
Fauchald 1977. Number of valid species 1. Distribution (15).

Paralanice timorensis Caullery, 1944.
Type locality Timor. Distribution (15) 73m.

(*Pallonia* Costa, 1862, see *Eupolyornia*)
(*Pallonia rapax* Costa, 1862, see *Eupolyornia nebulosa*)

Paramphitrite Holthe, 1976,
type: *Paramphitrite tetrabranchia* Holthe, 1976, monotypic.
Holthe 1986a. Number of valid species 3. Distribution (1, 10, 11, 14).

Paramphitrite birulai (Ssolowiew, 1899) as *Amphitrite birulai*.
Type locality White Sea. Distribution (1, 10) upper sublittoral.

Paramphitrite pauciseta (Day, 1963) as *Amphitrite pauciseta*.
Type locality South Africa. Distribution (14) 160m.

Paramphitrite tetrabanchia Holthe, 1976.
Holthe 1986a. Type locality Western Norway. Distribution (11) 55-138m.

(*Parascione* Caullery, 1944, as subgenus of *Scione*, see *Axionice*).

Paraxionice Fauchald, 1972,
type: *Paraxionice artifex* Fauchald, 1972, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (4).

Paraxionice artifex Fauchald, 1972.
Type locality Gulf of California. Distribution (4) 894m.

(*Pherea* Saint-Joseph, 1894, see *Lanassa*)

Phisidia Saint-Joseph, 1894,
type: *Leaena oculata* Langerhans, 1881.
Hessle 1917, Fauchald 1977a, Holthe 1986a. Number of valid species 3.
Distribution (11, 12, 16).

Phisidia aurea Southward, 1956.
Holthe 1986a. Type locality Isle of Man. Distribution (11) 30-170m.

Phisidia oculata (Langerhans, 1881) as *Leaena oculata*.
Langerhans 1884, Hessle 1917. Type locality Mediterranean. Distribution (12).

Phisidia sagamica Hessle, 1917.
Imajima & Hartman 1964. Type locality Japan. Distribution (16) 136m.

(*Phyzelia* Schmarda, 1861, see *Nicolea*)
(*Phyzelia agassizi* Kinberg, 1867, see *Nicolea chilensis*)
(*Phyzelia (Terebella) chilensis* Schmarda, 1861, see *Nicolea chilensis*)
(*Phyzelia viridis* Schmarda, 1861, see *Nicolea schmardai*)

Pista Malmgren, 1866,
type: *Amphitrite cristata* O.F. Müller, 1766,
synonyms: *Dendrophora* Grube, 1870; *Idalia* Quatrefages, 1865; *Otanes* Kinberg, 1867; *Scionopsis* Verrill, 1873.
Caullery 1915b, 1944, Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Hutchings 1977, Banse 1980, Cantone 1981, Safronova 1984, Holthe 1986a. Number of valid species 47. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27).

Pista abyssicola McIntosh, 1885.

Hartman 1966c. Type locality deep Subantarctic Waters. Distribution (26) 3588m.

Pista alata Moore, 1909, as *Pista (Scionopsis) alata*.

Monro 1933b, Hartman 1969, Fauchald 1977b. Type locality Southern California. Distribution (3, 4) eulittoral and shallow water.

Pista americana (Kinberg, 1867) as *Otanes americanus*.

Type locality Brazil. Distribution (8) 55m.

Pista atypica Hessle, 1917.

Imajima & Hartman 1964. Type locality Japan. Distribution (16) 150-300m.

Pista brevibranchia Caullery, 1915.

Caullery 1944, Day 1951, 1967. Type locality Malay Archipelago. Distribution (15, 25) 330-2060m.

Pista brevibranchia crassa Caullery, 1944

Pista brevibranchiata Moore, 1923, replacing *Pista brevibranchia* Chamberlin, 1919.

Synonym: *Pista fimbriata* Moore, 1923.

Hartman 1969, Fauchald 1972a, 1977b, Banse 1980. Type locality Southern California. Distribution (3, 4, 25) littoral to 2500m.

Pista breviuncinata Hartmann-Schröder, 1965.

Type locality Chile. Distribution (5) 50-90m.

Pista corrientis McIntosh, 1885.

Synonym: *Nicolea synbranchiata* Ehlers, 1913.

Hessle 1917, Monro 1930, Levenstejn 1964, Hartman 1966c, Safro-nova 1984. Type locality off Argentina. Distribution (6, 22, 27) 15-1100m.

Pista cretacea (Grube, 1860) as *Terebella cretacea*.

Synonym: *Terebella emmalina* Quatrefages, 1865.

Marenzeller 1884, St. Joseph 1898, Fauvel 1909, 1927, McIntosh 1915. Type locality Mediterranean. Distribution (11?, 12).

Pista cristata (O.F. Müller, 1776) as *Amphitrite cristata*.

Synonym: *Terebella turrita* Grube, 1860.

Quatrefages 1865, Malmgren 1866, Moore 1903, 1923, Fauvel 1909, 1927, Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, Potts 1928, Hartman 1945, 1965b, 1966c, 1967, 1969, Wesenberg-Lund 1950a, Ušakov 1955, Day 1963b, 1967, Imajima & Hartman 1964, Levenstejn 1964, Hartmann-Schröder 1971, Banse 1980, Fauchald & Hancock 1981,

Holthe 1986a. Type locality Norway. Distribution (1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 22, 25) eulittoral to ca 4000m.
Pista cristata capensis McIntosh, 1925

Pista curtuncinata Hartmann-Scröder, 1981.
Hartmann-Scröder 1985. Type locality West coast of Australia.
Distribution (15, 18).

Pista disjuncta Moore, 1923.
Hartman 1969. Type locality Southern California. Distribution (3, 25) 33-1200m.

Pista elongata Moore, 1909.
Synonyms : *Pista maculata* Marenzeller, 1884
Pista marenzelleri Hessle, 1917
Monro 1933, Okuda 1937b, Berkeley & Berkeley 1952, Rioja 1962, Imajima & Hartman 1964, Hartman 1969, Fauchald 1977b, Safronova 1984. Type locality California. Distribution (2, 3, 4, 16, 17) eulittoral to ca 20m.

Pista expansa (Treadwell, 1906) as *Lanice expansa*.
Hartman 1966a. Type locality Hawaii. Distribution (15) 225-263m.

Pista fasciata (Grube, 1870) as *Terebella (Phyzelia) fasciata*.
Marenzeller 1884, McIntosh 1885, Ehlers 1912, Fauvel 1933, Imajima & Hartman 1964, Day 1967, Hartman 1969, Fauchald 1977b.
Type locality Red Sea. Distribution (2, 3, 8, 15, 16) 15-245m.

Pista foliigera Caullery, 1915.
Fauvel 1919, Annenkova 1925, Day 1951, 1955, 1967. Type locality Celebes. Distribution (14, 15) 462m.

Pista foliigeraformis Annenkova, 1937.
Type locality north Japan Sea. Distribution (17).

Pista fratrella Chamberlin, 1919.
Hartman 1969, Banse 1980. Type locality Southern California. Distribution (2, 3) littoral.

Pista gibbauncinata Safronova, 1984.
Type locality north-east Pacific. Distribution (25) 1340-2889m.

Pista godfroyi (Gravier, 1911) as *Scione godfroyi*.
Benham 1927a, Levensteyn 1964, Hartman 1966c. Type locality King George Island, Antarctica. Distribution (22) 75-550m.

Pista grubei Augener, 1918.
Type locality Congo. Distribution (13).

Pista herpini Fauvel, 1928.

Fauvel 1930, 1933, Monro 1933, Fauchald 1977b. Type locality India. Distribution (4?, 15) littoral to 24m.

Pista incarrientis Annenkova, 1925.

Synonym: *Pista acarrientis* Annenkova, 1925.
Ušakov 1955. Type locality Tartar Strait. Distribution (17) 32m.

Pista indica Fauvel, 1940.

Type locality India. Distribution (15).

Pista intermedia Webster & Benedict, 1884.

Type locality Massachusetts. Distribution (10) lower eulittoral.

Pista macrolobata Hesse, 1917.

Fauvel 1933, Day 1967. Type locality Bonin Islands. Distribution (16) eulittoral.

Pista microlobata Hesse, 1917.

Imajima & Hartman 1964. Type locality Japan. Distribution (16) 1-2m.

Pista mirabilis McIntosh, 1885.

Fauvel 1909, 1914, 1927, Benham 1921, Monro 1930, Levenstejn 1964, Hartman 1966c, 1978, Safronova 1984. Type locality off Argentina. Distribution (6, 22, 26, 27) 83-1100m.

Pista moorei Berkeley & Berkeley, 1942.

Hartman 1969. Type locality Western Canada and California. Distribution (2, 3) 36m to slope depths.

Pista obesiseta Caullery, 1915.

Caullery 1944. Type locality Malay Archipelago. Distribution (15) 878m.

Pista ortodoxa Safronova, 1984.

Type locality Sangar Strait, Pacific. Distribution. (25) 1270m.

Pista pachybranchiata Fauvel, 1932.

Type locality Laccadive Sea. Distribution (23) 2100-2150m.

Pista pacifica Berkeley & Berkeley, 1942.

Hartman 1969, Terwilliger & Koppenheffer 1973, O'Malley & Terwilliger 1975. Type locality Western Canada and California. Distribution (2, 3) eulittoral.

Pista palmata (Verrill, 1873) as *Scionopsis palmata*.

Type locality New England. Distribution (9, 10).

Pista parapacifica Hartmann-Schröder, 1965.
Type locality Chile. Distribution (5) 50m.

Pista pectinata Hutchings, 1977.
Type locality Queensland. Distribution (18).

Pista penicillibranchiata Safronova, 1984.
Type locality Aleutian and Japan Trenches. Distribution (25)
3990-4180m.

Pista quadrilobata (Augener, 1918) as *Nicolea quadrilobata*.
Synonym: *Pista qolora* Day, 1951.
Day 1961, 1963b, 1967. Type locality Southwest Africa. Distribution (14).

Pista robustiseta Caullery, 1915.
Hessle 1917, Fauvel 1933, Caullery 1944, Imajima & Hartman 1964.
Type locality Timor. Distribution (15, 16, 23) 300-1120m.

Pista sachsi Annenkova, 1925.
Ušakov 1955. Type locality Sea of Okhotsk. Distribution (17).

Pista sibogae Caullery, 1915.
Type locality Malay Archipelago. Distribution (15) 960m.

Pista sombreriana McIntosh, 1885.
Type locality off West Indies. Distribution (8) 718m.

Pista spinifera (Ehlers, 1908) as *Scione spinifera*.
Type locality Bouvet Island. Distribution (22).

Pista trina Hutchings, 1977.
Type locality Queensland. Distribution (18) shallow water.

Pista trunca Hutchings, 1977.
Type locality Queensland. Distribution (18) shallow water.

Pista typha (Grube, 1878) as *Terebella (Pista) typha*.
Caullery 1915b, 1944, Hessle 1917, Fauvel 1933, Hutchings 1977,
Hutchings & Murray 1984. Type locality Philippines. Distribution
(2, 15, 16, 18, 19, 23) 4-2200m.
Pista typha aequibranchia Caullery, 1944.

Pista unibranchia Day, 1963.
Day 1967, Cantone 1981. Type locality South Africa. Distribution
(14).

- (*Pista acarrientis* Annenkova, 1925, see *Pista incarrientis*)
(*Pista brevibranchia* Chamberlin, 1919, HOMONYM, see *Pista brevibranchiata*)
(*Pista cristata occidentalis* Bidentkap in Nordgaard, 1907, see *Eupolymnia nebulosa*)
(*Pista dibranchis* Gibbs, 1971, see *Scionella dibranchis*)
(*Pista fimbriata* Moore, 1923, see *Pista brevibranchiata*)
(*Pista foliigera* Annenkova, 1925, see *Pista foliigeraformis*)
(*Pista groenlandica* Treadwell, 1937, see *Pista maculata*)
(*Pista maculata* Marenzeller, 1884, see *Pista elongata*)
(*Pista marenzelleri* Hessle, 1917, see *Pista elongata*)
(*Pista pacifica* Ušakov, 1950, HOMONYM, see *Scionella vinogradovi*)
(*Pista qolora* Day, 1955, see *Pista quadrilobata*)
(*Pista (Terebella) thuja* Grube in Hessle, 1917, questionable)
(*Pista vinogradovi* Ušakov, 1955, see *Scionella vinogradovi*)
(*Pista zachsi* Annenkova, 1937, see *Pista sachsi*)
- (*Polymnia* Malmgren, 1867, HOMONYM, see *Eupolymnia*)
(*Polymnia boniniana* Hessle, 1917, see *Eupolymnia boniniana*)
(*Polymnia capensis* McIntosh, 1924, see *Eupolymnia capensis*)
(*Polymnia congruens* Marenzeller, 1884, see *Eupolymnia congruens*)
(*Polymnia dubia* Caullery, 1944, see *Eupolymnia dubia*)
(*Polymnia intoshi* Caullery, 1944, see *Eupolymnia intoshi*)
(*Polymnia labiata* Willey, 1905, see *Eupolymnia labiata*)
(*Polymnia marenzelleri* Caullery, 1944, see *Eupolymnia marenzelleri*)
(*Polymnia nesidensis japonica* Moore, 1903, see *Eupolymnia nesidensis japonica*)
(*Polymnia robusta* Caullery, 1944, see *Eupolymnia robusta*)
(*Polymnia socialis* Willey, 1905, see *Lanice socialis*)
(*Polymnia trigonostoma robusta* Annenkova, 1925, questionably *Eupolymnia congruens*)
(*Polymnia triplicata* Willey, 1905, see *Eupolymnia trigonostoma*)
(*Polymnia viridis* Malm, 1874, questionably *Eupolymnia nesidensis*)
- Polymniella* Verrill, 1900, as subgenus of *Eupolymnia*,
type: *Eupolymnia (Polymniella) aurantiaca* Verrill, 1900, monotypic.
Fauchald 1977b. Number of valid species 1. Distribution (8, 9).
- Polymniella aurantiaca* Verrill, 1900, as *Eupolymnia (Polymniella) aurantiaca*.
Synonym: *Terebella hiati* Treadwell, 1931.
Hessle 1917, Hartman 1956. Type locality Bermuda. Distribution
(8, 9) shallow water.

Proclea Saint-Joseph, 1894,
type: *Leaena graffi* Langerhans, 1884,
Synonym: *Solowetia* Ssolowiew, 1899.
Hessle 1917, McIntosh 1922, Ušakov 1955, Hartmann-Schröder 1971,
Fauchald 1977a, Holthe 1986a. Number of valid species 4. Distribution
(1, 2, 11, 12, 15?, 17, 22).

Proclea emmi Annenkova, 1937.
Annenkova 1938, Ušakov 1955. Type locality Tartar Strait. Distri-
bution (17) 18-58m.

Proclea glabrolimbata Hessle, 1917.
Hartman 1966. Type locality Graham Land. Distribution (22) 360m.

Proclea graffi (Langerhans, 1884) as *Leaena graffi*.
Southern 1914, Hessle 1917, McIntosh 1922, Fauvel 1927, Ušakov
1955, Hartmann-Schröder 1971, Holthe 1986a. Type locality Madeira.
Distribution (2?, 11, 12, 15?, 17) shallow sublittoral.

Proclea malmgreni (Ssolowiew, 1899) as *Solowetia malmgreni*.
Holthe 1986a. Type locality White Sea. Distribution (1, 11) 13-200m.

Ramex Hartman, 1944,
type: *Ramex californiensis* Hartman, 1944, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution 3

Ramex californiensis Hartman, 1944.
Hartman 1969. Type locality California. Distribution (3) eulitto-
ral.

Reteterebella Hartman, 1963,
type: *Reteterebella queenslandia* Hartman, 1963, monotypic.
Gibbs 1971, Fauchald 1977a. Number of valid species 1. Distribution
(15, 19).

Reteterebella queenslandia Hartman, 1963.
Type locality Queensland. Distribution (15, 19) littoral.

(*Schmardanella* McIntosh, 1885, see *Terebella*)
(*Schmardanella pterochaeta* McIntosh, 1885, see *Terebella*
pterochaeta)

(*Scione* Malmgren, 1866, see *Axionice*)
(*Scione* (*Parascione*) *abyssorum* Caullery, 1944, see *Axionice*
abyssorum)
(*Scione albomaculata* Caullery, 1944 see *Axionice albomaculata*)
(*Scione godfroyi* Gravier, 1911, see *Pista godfroyi*)

(*Scione harrissoni* Benham, 1916, questionably *Nicolea cetrata*)
(*Scione lobata* Malmgren, 1866, see *Axionice maculata*)
(*Scione moorei* Caullery, 1944, see *Axionice moorei*)
(*Scione spinifera* Ehlers, 1908, see *Axionice spinifera*)

Scionella Moore, 1903,

type: *Scionella japonica* Moore, 1903.

Pearsson 1969, Fauchald 1977a, Holthe 1986a. Number of valid species 5. Distribution (2, 3, 4, 11, 16, 17).

Scionella dibranchis (Gibbs, 1971) new combination, as *Pista dibranchis*.

Type locality Solomon Islands. Distribution (15) littoral.

Scionella estevanica Berkeley & Berkeley, 1942.

Type locality Canadian West Coast. Distribution (2) 137m.

Scionella japonica Moore, 1903.

Imajima & Hartman 1964, Hartman 1969. Type locality Japan Sea. Distribution (2, 3, 4, 16, 17) moderate depths.

Scionella lornensis Pearson, 1969

Holthe 1986a. Type locality Scotland. Distribution (11) 25-94m.

Scionella vinogradovi Ušakov, 1955, replacing *Pista pacifica* Ušakov, 1950 (HOMONYM).

Type locality Sea of Okhotsk. Distribution (25) 1366m.

Scionides Chamberlin, 1919,

type: *Terebella reticulata* Ehlers, 1887.

Fauchald 1977a, Banse 1980. Number of valid species 1. Distribution (2, 8).

Scionides reticulata (Ehlers, 1887) as *Terebella reticulata*.

Banse 1980. Type locality off southern Florida. Distribution (8).

(*Scionides dux* Chamberlin, 1919, see *Neoamphitrite robusta*)

(*Scionopsis* Verrill, 1873, see *Pista*)

(*Scionopsis palmata* Verrill, 1873, see *Pista palmata*)

(*Solowetia* Ssolowiew, 1899 see *Proclea*)

(*Solowetia malmgreni* Ssolowiew, 1899 see *Proclea malmgreni*)

Spinospaera Hesse, 1917,

type: *Spinospaera pacifica* Hesse, 1917.

Fauchald 1977a. Number of valid species 2. Distribution (3, 16).

Spinosaera oculata Hartman, 1944.
Hartman 1969. Type locality California. Distribution (3) eulittoral.

Spinosaera pacifica Hessle, 1917.
Imajima & Hartman 1964. Type locality Japan. Distribution (16) 135m.

Spiroverma Uchida, 1968,
type: *Spiroverma ononokomachii* Uchida, 1968, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (16).

Spiroverma ononokomachii Uchida, 1968.
Type locality Japan. Distribution (16).

Stschapovella Levenstejn, 1957,
type: *Stschapovella tatjanae* Levenstejn, 1957, monotypic.
Fauchald 1977a. Number of valid species 1. Distribution (1).

Stschapovella tatjanae Levenstejn, 1957.
Type locality Bering Sea. Distribution (1) 3100m.

Terebella Linnaeus, 1767,
type: *Terebella lapidaria* Linnaeus, 1767,
synonyms: *Heterophysella* Quatrefages, 1866; *Heteroterebella* Quatrefages, 1866; *Leprea* Malmgren, 1866; *Schmardanella* McIntosh, 1885.
Risso 1826, Malmgren 1866, Hessle 1917, McIntosh 1922, Fauvel 1933, Ušakov 1955, Day 1967, Fauchald 1977a, Holthe 1986a.
Number of valid species 26. Distribution (2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22).

Terebella aberrans Fauvel, 1949.
Type locality Dakar. Distribution (13) eulittoral.

Terebella abyssicola (Verrill, 1885) as *Leaena abyssicola*.
Type locality New England. Distribution (10) 90-240m.

Terebella bilineata Baird, 1865.
Hartman 1966c. Type locality Falkland Islands. Distribution (22).

Terebella californica Moore, 1904, as *Terebella* (*Schmardanella*) *californica*.
Hessle 1917, Hartman 1969. Type locality Southern California.
Distribution (3) eulittoral

Terebella ceratobranchia (Caullery, 1944) as *Leprea ceratobranchia*.
Type locality Malay Archipelago. Distribution (15) 959m.

Terebella chilensis Hartmann-Schröder, 1962.
Type locality Chile. Distribution (5) eulittoral.

Terebella ehlersi Gravier, 1907.
Hessle 1917, Benham 1927a, Levenstejn 1964, Hartman 1966c, Averincev 1982. Type locality Antarctica. Distribution (6, 15, 22) 6-604m.

Terebella ehrenbergi Grube, 1870.
Marenzeller 1884, Gravier 1905a, Hessle 1917, Benham 1927a, Potts 1928, Fauvel 1933, Annenkova 1938, Ušakov 1955, Imajima & Hartman 1964, Day 1967, Rullier 1972. Type locality Red Sea. Distribution (2, 12, 15, 16, 17) 0-600m.
Terebella ehrenbergi yappensis Okuda, 1937.

Terebella gorgonae Monro, 1933.
Fauchald 1977b. Type locality Pacific coast of Panama and Galapagos. Distribution (4) eulittoral.

Terebella haplochaeta (Ehlers, 1905) as *Leprea haplochaeta*.
Augener 1926. Type locality New Zealand. Distribution (18, 20, 21) eulittoral.

Terebella lapidaria Linnaeus, 1767.
Synonyms: *Amphitrite neapolitana* Delle Chiaje, 1828,
Heterophyselia bosci Quatrefages, 1866,
Heteroterebella sanguinea Claparède, 1870,
Loimia montagui McIntosh, 1922,
Terebella constrictor Montagu, 1818?
Terebella constrictor Grube, 1855,
Terebella megalonema Scmarda, 1861,
Terebella misensis Costa, 1841,
Terebella pectinata Grube, 1855,
Terebella rosea Grube, 1860,
Terebella sulcigera Claparède, 1870,
Marenzeller 1884, Grube 1860, St Joseph 1894, McIntosh 1915, 1922,
Hessle 1917, Augener 1918, Romieu 1921, Fauvel 1927, Rioja 1947,
Sutton 1957, Hartmann-Schröder 1965, Hartman 1966a. Type locality
Western Europe. Distribution (6, 8, 11, 12, 15, 16) littoral.
Terebella lapidaria juanensis (Augener, 1922), as *Leprea*
(*Terebella*) *lapidaria juanensis*.

Terebella magnifica Webster, 1884.
Welsh 1934. Type locality Bermuda. Distribution (9).

Terebella ochracea Grube, 1878.
Type locality Northwest Australia. Distribution (15).

- Terebella orotavae* (Langerhans, 1881) as *Amphitrite orotavae*.
Augener 1918. Type locality Canary Islands. Distribution (12).
- Terebella panamena* Chamberlin, 1919.
Type locality Perico Island, Panama. Distribution (4) eulittoral.
- Terebella pappus* Hutchings & Murray, 1984.
Type locality New South Wales. Distribution (18) shallow water.
- Terebella parvibranchiata* Treadwell, 1906.
Hartman 1966a. Type locality Hawaii. Distribution (15) 817-880m.
- Terebella pterochaeta* Schmarda, 1861.
McIntosh 1885, Gravier 1905a, Ehlers 1912, Hessle 1917, Augener
1918, Day 1934, 1951, 1967. Type locality South Africa. Distri-
bution (14, 15) 0-100m.
- Terebella punctata* Hessle, 1917.
Imajima & Hartman 1964. Type locality Japan. Distribution (16)
eulittoral.
- Terebella schmardai* Day, 1934.
Day 1955, 1961, 1967. Type locality South Africa. Distribution
(13, 14) lower eulittoral.
- Terebella stenotaenia* Grube, 1871.
Type locality Moreton Bay, Australia. Distribution (18).
- Terebella subcirrata* Grube, 1871.
Type locality Saint Paul Island
- Terebella tilosaula* Schmarda, 1861.
Type locality Ceylon. Distribution (15).
- Terebella verrilli*, new name replacing *Leprea rubra* Verrill, 1873,
secondary homonym in combination with *Terebella*.
Type locality New England. Distribution (10).
- Terebella verrucosa* (Caulley, 1944) as *Leprea verrucosa*.
Type locality Kei archipelago. Distribution (15) 204m.
- Terebella virescens* Grube, 1870.
Type locality Red Sea. Distribution (15).
- (*Terebella abbreviata* Quatrefages, 1865 see *Eupolyymia nesidensis*)
(*Terebella alata* Grube, 1859, questionable)

- (*Terebella annulicornis* Grube, 1871 error for *annulifilis*)
(*Terebella annulifilis* Grube, 1871, see *Loimia medusa annulifilis*)
(*Terebella artifex* Sars, 1863, see *Lanice conchilega*)
(*Terebella bicornis* Abildgaard, 1789, perhaps *Spirobranchus giganteus*, SERPULIDAE)
(*Terebella bilineata* Baird, 1865, questionable)
(*Terebella biseta* Lamarck, 1801, indeterminate)
(*Terebella brunnea* Stimpson, 1854, see *Amphitrite brunnea*)
(*Terebella bruneo-comata* Ehlers, 1887, see *Amphitritides bruneo-comata*)
(*Terebella buccina* Renier, 1804, see *Myxicola infundibulum*, SABELLIDAE)
(*Terebella cetrata* Ehlers, 1887, see *Nicolea cetrata*)
(*Terebella chloraema* Schmarda, 1861, see *Amphitrite chloraema*)
(*Terebella cirrhata* Montagu, 1818, see *Amphitrite cirrata*)
(*Terebella claparedii* Grube, 1878, see *Nicolea claparedii*)
(*Terebella coccinea* Grube, 1870, see *Polycirrus coccineus*)
(*Terebella comata* Grube, 1859, see *Thelepus comatus*)
(*Terebella compacta* Grube, 1863, see *Amphitrite rubra*)
(*Terebella constrictor* Montagu, 1818, questionably *Terebella lapidaria*)
(*Terebella corallina* Grube, 1855, see *Terebella lapidaria*)
(*Terebella crassicornis* Schmarda, 1861, see *Eupolyymnia crassicornis*)
(*Terebella crassifilis* Grube, 1878, see *Loimia crassifilis*)
(*Terebella cretacea* Grube, 1860, see *Pista cretacea*)
(*Terebella danielsenii* Malmgren, 1866, see *Eupolyymnia nesidensis*)
(*Terebella dasycomus* Grube, 1868, perhaps *Nicolea* or questionably *Amphitrite rubra*)
(*Terebella debilis* Malmgren, 1866, see *Eupolyymnia nebulosa*)
(*Terebella ebranchiata* Sars, 1865, see *Leaena ebranchiata*)
(*Terebella edwardsii* Quatrefages, 1865, see *Neoamphitrite edwardsii*)
(*Terebella elongata* Quatrefages, 1865, see *Amphitrite brunnea*)
(*Terebella emmalina* Quatrefages, 1865, see *Pista cretacea*)
(*Terebella figulus* Dalyell, 1853, see *Neoamphitrite figulus*)
(*Terebella flabellum* Baird, 1865 nomen nudum, perhaps *Lanice*)
(*Terebella flavescens* Claparède, 1870, see *Eupolyymnia nesidensis*)
(*Terebella flexuosa* Grube, 1860, see *Axionice flexuosa*)
(*Terebella frondosa*, Grube, 1859, questionable)
(*Terebella fulgida* Agassiz, 1851, indeterminate)
(*Terebella gelatinosa* Keferstein, 1862, see *Amphitritides gracilis*)
(*Terebella gigantea* Montagu, 1818, in McIntosh 1922 see *Loimia medusa* or *Lanice conchilega*)
(*Terebella gigantea* Quatrefages, 1865, see *Neoamphitrite affinis*)
(*Terebella gracilis* Grube, 1860, see *Amphitritides gracilis*)
(*Terebella gracilibranchis* Grube, 1878, see *Nicolea gracilibranchis*)
(*Terebella gracilicauda* Kinberg, 1867, see *Nicolea gracilicauda*)

- (*Terebella grubei* McIntosh, 1885, see *Eupolyornia trigonostoma*)
(*Terebella haematina* Grube, 1871, questionably *Amphitrite*)
(*Terebella hesslei* Annenkova, 1924, see *Baffinia hesslei*)
(*Terebella heterobranchia* Schmarda, 1861, see *Thelepus plagiostoma*)
(*Terebella hiati* Treadwell, 1931, see *Polymniella aurantiaca*)
(*Terebella infundibulum* Renier, 1804, see *Myxicola infundibulum*,
SABELLIDAE)
(*Terebella ingens* Grube, 1878, see *Loimia ingens*)
(*Terebella jucunda* Kinberg, 1867, see *Amphitrite jucunda*)
(*Terebella kermadecensis* McIntosh, 1885, perhaps *Eupolyornia* sp)
(*Terebella laevirostris* Claparède, 1870, see *Amphitritides*
gracilis)
(*Terebella (Lanice) seticornis* McIntosh, 1885, see *Lanice seticornis*)
(*Terebella lapidaria juanensis* Augener, 1922, incompletely known)
(*Terebella lingulata* Grube, 1863 see *Octobranchus lingulatus*,
TRICHOBRANCHIDAE)
(*Terebella littoralis* seu *arenaria* Dalyell, 1853, see *Lanice*
conchilega)
(*Terebella (Loimia) contorta* Ehlers, 1908, see *Loimia contorta*)
(*Terebella (Loimia) ochracea* Grube, 1877, see *Loimia ochracea*)
(*Terebella longicornis* Sars, 1829, questionably *Nicolea zostericola*)
(*Terebella lutea* Risso, 1826, questionably *Thelepus cincinnatus*)
(*Terebella lutea* Grube, 1855, see *Eupolyornia nesidensis*)
(*Terebella macrobranchia* Schmarda, 1861, see *Nicolea macrobranchia*)
(*Terebella macrocephala* Schmarda, 1861, see *Pseudothelepus*
oligocirrus; Augener 1925b)
(*Terebella maculata* Dalyell, 1853, see *Axionice maculata*)
(*Terebella madida* Frey & Leuckart, 1847, see *Thelepus cincinnatus*)
(*Terebella medusa* Savigny, 1818, see *Loimia medusa*)
(*Terebella megalonema* Schmarda, 1861, see *Terebella*; cfr. Augener
1925b)
(*Terebella misenensis* Costa, 1841, see *Terebella lapidaria*)
(*Terebella modesta* Quatrefages, 1865, see *Amphitrite modesta*)
(*Terebella montagui* Quatrefages, 1865, questionably *Amphitrite*
cirrata)
(*Terebella montagui* Grube, 1878, HOMONYM, see *Loimia grubei*)
(*Terebella multisetosa* Grube, 1838, see *Amphitrite rubra*)
(*Terebella nebulosa* Montagu, 1818, see *Eupolyornia nebulosa*)
(*Terebella ornata* Leidy, 1855, see *Amphitrite ornata*)
(*Terebella ostreae* Dalyell, 1853, see *Dodecacera concharum*,
CIRRATULIDAE)
(*Terebella parvula* Leuckart, 1849, see *Nicolea venustula*)
(*Terebella paulina* Grube, 1871, probably *Terebellides*, TRICHO-
BRANCHIDAE)
(*Terebella pecten* Dalyell, 1853, see *Terebellides stroemi*, TRICHO-
BRANCHIDAE)

- (*Terebella pectinata* Grube, 1855, see *Terebella lapidaria*)
(*Terebella pectoralis* Quatrefages, 1865, see *Lanice conchilega*)
(*Terebella* (*Phyzelia*) *atricapilla* Grube, 1870, questionable)
(*Terebella* (*Phyzelia*) *bilobata* Grube, 1877, see *Lanicides bilobata*)
(*Terebella* (*Phyzelia*) *fasciata* Grube, 1870, see *Pista fasciata*)
(*Terebella* (*Phyzelia*) *ochroleuca* Grube, 1870, questionable)
(*Terebella* (*Phyzelia*) *quadrilobata* Grube, 1877, error for *bilobata*)
(*Terebella* (*Phyzelia*) *vayssierei* Gravier, 1911, see *Lanicides vayssierei*)
(*Terebella* (*Pista*) *typha* Grube, 1878, see *Pista typha*)
(*Terebella plagiostoma* Schmarda, 1861, see *Thelepus plagiostoma*)
(*Terebella prudens* Quatrefages, 1865, see *Lanice conchilega*)
(*Terebella pustulosa* Grube, 1860, see *Thelepus cincinnatus*)
(*Terebella quinqueseta* Lamarck, 1801, indeterminable)
(*Terebella reticulata* Ehlers, 1887, see *Scionides reticulata*)
(*Terebella rosea* Grube, 1860, see *Terebella lapidaria*)
(*Terebella rubra* Linnaeus, 1788, perhaps *Eunice* sp., EUNICIDAE)
(*Terebella rubra* Risso, 1826, see *Amphitrite rubra*)
(*Terebella rubra* (Verrill, 1873) as *Leprea rubra*, secondary HOMO-
NYM, see *Terebella verilli*)
(*Terebella sarsii* Grube, 1878, questionable)
(*Terebella* (*Schmardanella*) *californica* Moore, 1904, see *Terebella californica*)
(*Terebella scylla* Savigny, 1820, see *Amphitrite scylla*)
(*Terebella spiralis* Grube, 1860; Wiktor 1980, see *Amphitrite rubra*)
(*Terebella stellata* Abildgaard, 1789, see *Pomatostegus stellatus*,
SERPULIDAE)
(*Terebella strepsibranchis* Grube, 1871, probably *Terebellides*,
TRICHOBRANCHIDAE)
(*Terebella sulcigera* Claparède, 1870, see *Terebella lapidaria*)
(*Terebella tentaculata* Montagu, 1808, see *Cirriformia tentaculata*,
CIRRATULIDAE)
(*Terebella textrix* Dalyell, 1853, see *Nicolea venusta* or *Terebella lapidaria*)
(*Terebella thoracica* Grube, 1870, see *Thelepus thoracicus*)
(*Terebella thuja* Grube, 1871, locality not known)
(*Terebella trigonostoma* Schmarda, 1861, see *Eupolymnia trigonostoma*)
(*Terebella triserialis* Grube, 1855; Wiktor 1980, see *Thelepus triserialis*)
(*Terebella tuberculata* Dalyell, 1853, see *Eupolymnia nebulosa*)
(*Terebella turgidula* Ehlers, 1887, see *Eupolymnia crassicornis*)
(*Terebella turrita* Grube, 1860, see *Pista cristata*)
(*Terebella variabilis* Risso, 1826, see *Amphitrite variabilis* or
Amphitrite scylla)
(*Terebella variegata* Grube, 1870, see *Loimia variegata*)
(*Terebella venustula* Montagu, 1818, see *Nicolea venustula*)
(*Terebella vestita* Claparède, 1870, see *Nicolea venustula*)

(*Terebella vigintipes* Grube, 1870, see *Amphitrite rubra*)
(*Terebella viminalis* Grube, 1855; Wiktor 1980, see *Amphitrite variabilis*)
(*Terebella zostericola* Ørsted, 1844, see *Nicolea zostericola*)

(*Terebellanice* Hartmann-Schröder, 1962, see *Thelepus*, THELEPODINAE, fide Hartmann-Schröder in Banse 1980)

(*Terebellanice leaerviseta* Hartmann-Schröder, 1962, see *Thelepus*)

Terebellobranchia Day, 1951,

type: *Terebellobranchia natalensis* Day, 1951.

Day 1967, Fauchald 1977a. Number of valid species 2. Distribution (14, 15).

Terebellobranchia hugonis Rullier, 1972.

Type locality New Caledonia. Distribution (15).

Terebellobranchia natalensis Day, 1951

Day 1967. Type locality South Africa. Distribution (14).

(*Thelepella* Chamberlin, 1919, see *Nicolea*)

Thelepides Gravier, 1911,

type: *Thelepides koehleri* Gravier, 1911.

Caullery 1944, Levenstejn 1964, Fauchald 1977a. Number of valid species 3. Distribution (15, 22).

Thelepides koehleri Gravier, 1911.

Hessle 1917, Hartman 1966c, Averincev 1982. Type locality Antarctica. Distribution (22) lower eulittoral to 36m.

Thelepides malayensis Caullery, 1944.

Type locality off Timor. Distribution (15) 520m.

Thelepides venustus Levenstejn, 1964.

Hartman 1966c. Type locality Antarctica. Distribution (22) 197-397m.

(*Uncinochaeta* Quatrefages, 1865, indeterminate)

(*Uncinochaeta incompleta* Quatrefages, 1865, indeterminate)

(*Wartelia* Giard, 1878, see *Lanice*)

THELEPODINAE Hessle, 1917

Caullery 1915a, Fauvel 1927, Ušakov 1955, Day 1967, Fauchald 1977a,

Holthe 1986a. Number of genera described 21, whereof 9 are presently considered valid. Number of valid species 64.

(*Athelepus* Chamberlin, 1919, nomen nudum)

Decathelepus Hutchings, 1977,
type: *Decathelepus ocellatus* Hutchings, 1977, monotypic.
Number of valid species 1. Distribution (18).

Decathelepus ocellatus Hutchings, 1977.
Type locality Queensland. Distribution (18) 4m.

(*Eugrymaea* Verrill, 1900, see *Streblosoma*)

Euthelepus McIntosh, 1885,
type: *Euthelepus setubalensis* McIntosh, 1885,
synonym: *Protothelepus* Verrill, 1900.
Hessle 1917, Fauvel 1927, Caullery 1944, Day 1967, Hartman & Fauchald
1971, Fauchald 1977a. Number of valid species 7. Distribution (8, 9,
12, 13, 15, 28).

Euthelepus abbranchiatus Hartman & Fauchald, 1971.
Type locality Northwest Atlantic. Distribution (28) 2022m.

Euthelepus atlanticus Hartman & Fauchald, 1971.
Type locality Northwest Atlantic. Distribution (28) 1330-1470.

Euthelepus kinsemboensis Augener, 1918.
Fauvel 1930, Day 1967, Gibbs 1971. Type locality off West Africa.
Distribution (13, 15) shallow water.

Euthelepus malayensis Caullery, 1944. Type locality Malaya. Distri-
bution (15) 50-60m.

Euthelepus pascua Fauchald, 1977.
Type locality Atlantic coast of Panama. Distribution (8) shallow
water.

Euthelepus setubalensis McIntosh, 1885.
Fauvel 1927. Type locality off Portugal. Distribution (12) 865m.

Euthelepus tenuis (Verrill, 1900) as *Protothelepus tenuis*.
Type locality Bermuda. Distribution (8, 9).

(*Euthelepus chilensis* McIntosh, 1885, see *Streblosoma chilensis*)

(*Grymaea* Malmgren, 1866, HOMONYM, see *Streblosoma*)

(*Grymaea bairdi* Malmgren, 1866, see *Streblosoma bairdi*)
(*Grymaea brachiata* Ehlers, 1874, see *Streblosoma intestinale*)
(*Grymaea cespitosa* Willey, 1905, see *Streblosoma cespitosa*)
(*Grymaea persica* Fauvel, 1908, see *Streblosoma persica*)
(*Grymaea spiralis* Verrill, 1874, see *Streblosoma spiralis*)

(*Heterophenacia* Quatrefages, 1866, see *Thelepus*)
(*Heterophenacia gigantea* Quatrefages, 1866, questionably *Thelepus*)
(*Heterophenacia nucleolata* Claparède, 1870, see *Thelepus cincinnatus*)
(*Heterophenacia renouardi* Marion, 1883, see *Thelepus cincinnatus*)

(*Lumara* Stimpson, 1854, see *Thelepus*)
(*Lumara flava* Stimpson, 1854, see *Thelepus cincinnatus*)

(*Neottis* Malmgren, 1866, see *Thelepus*)
(*Neottis antarctica* McIntosh, 1876, see *Thelepus plagiostoma*)
(*Neottis gracilis* Kinberg, 1867, see *Thelepus*, questionable)
(*Neottis rugosa* Ehlers, 1897, see *Thelepus plagiostoma*)
(*Neottis spectabilis* Verrill, 1875, perhaps *Thelepus comatus* or *Thelepus setosus*)

Parathelepus Caullery, 1915,
type: *Thelepides collaris* Southern, 1914,
synonym: *Thelepides* Southern, 1914.
Hessle 1917, McIntosh 1922, Fauvel 1927, Fauchald 1977a. Number of
valid species 1. Distribution 11, 12.

Parathelepus collaris (Southern, 1914) as *Thelepides collaris*.
McIntosh 1922, Fauvel 1927. Type locality Ireland. Distribution
(11, 12) moderate depths.

(*Phenacia* Quatrefages, 1866, see *Thelepus*)
(*Phenacia ambigrada* Claparède, 1870, see *Thelepus cincinnatus*)
(*Phenacia exilis* Grube, 1878; Wiktor 1980, perhaps *Streblosoma cespitosa*)
(*Phenacia leptoplocamus* Grube, 1878, see *Thelepus leptoplocamus*)
(*Phenacia oculata* Schmankevitch, 1875, see *Hypania invalida*)
AMPHARETIDAE)
(*Phenacia parca* Grube, 1878, see *Thelepus parcus*)
(*Phenacia paucibranchis* Grube, 1878, see *Thelepus paucibranchis*)
(*Phenacia pulchella* Parfitt, 1866, see *Thelepus cincinnatus*)
(*Phenacia retrograda* Claparède, 1870, see *Thelepus cincinnatus*)
(*Phenacia robusta* Grube, 1878, see *Thelepus robustus*)
(*Phenacia setosa* Quatrefages, 1866, see *Thelepus setosus*)
(*Phenacia terebelloides* Quatrefages, 1865, see *Thelepus cincinnatus*)

(*Protothelepus* Verrill, 1900, see *Euthelepus*)

(*Protothelepus tenuis* Verrill, 1900, see *Euthelepus tenuis*)

Pseudostreblosoma Hutchings & Murray, 1984,

type: *Pseudostreblosoma serratum* Hutchings & Murray, 1984 monotypic

Number of valid species 1. Distribution (18).

Pseudostreblosoma serratum Hutchings & Murray, 1984.

Type locality New South Wales. Distribution (18) shallow water.

Pseudothelepus Augener, 1918,

type: *Sabellides ologocirra* Schmarda, 1861.

Number of valid species 1. Distribution (8, 14?).

Pseudothelepus oligocirrus (Schmarda, 1861) as *Sabellides oligocirra*.

Synonym: *Terebella macrocephala* Schmarda, 1861?

Type locality West Indies. Distribution (8, 14?).

(*Pseudothelepus nyanganus* Augener, 1918, see *Pseudothelepus oligocirrus* or *Streblosoma persica*).

Rhinothelepus Hutchings, 1974,

type: *Rhinothelepus lobatus* Hutchings, 1974.

Hutchings 1977. Number of valid species 2. Distribution (18).

Rhinothelepus lobatus Hutchings, 1974.

Hutchings & Rainer 1979, Hutchings & Murray 1984. Type locality New South Wales. Distribution (18) shallow water.

Rhinothelepus macer Hutchings, 1977.

Type locality Queensland. Distribution (18) shallow water.

Streblosoma Sars, 1872,

type: *Grymaea bairdi* Malmgren, 1866,

synonyms: *Eugrymaea* Verrill, 1900; *Grymaea* Malmgren, 1866.

Wollebæk 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, Caullery 1944, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Kritzler 1971, Hutchings 1977, Fauchald 1977a, Holthe 1986a. Number of valid species 21. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 27).

Streblosoma abbranchiata Day, 1963.

Day 1967. Type locality off South Africa. Distribution (27) 2269m.

Streblosoma acymatum Hutchings & Rainer, 1979.

Hutchings & Murray 1984. Type locality New South Wales. Distribution (18).

Streblosoma amboinense Caullery, 1944.
Hutchings 1974, 1977. Type locality Amboina. Distribution (15, 18) shallow water.

Streblosoma antarctica Monro, 1936, as *Streblosoma bairdi antarctica*.
Hartman 1966, 1978. Type locality Antarctica. Distribution (22) 20-400m.

Streblosoma atos Hutchings & Murray, 1984.
Type locality New South Wales. Distribution (18) shallow water.

Streblosoma bairdi (Malmgren, 1866).
Synonym: *Streblosoma cochleatum* Sars, 1872.
Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, Fauvel 1927, Ušakov 1955, Hartmann-Schröder 1965b, 1971, Holthe 1986a. Type locality Swedish west coast. Distribution (2, 3, 5, 6, 8, 11, 12, 13, 17, 22) 15-650m.

Streblosoma cespitosa (Willey, 1905) as *Grymaea cespitosa*.
Type locality Ceylon. Distribution (15).

Streblosoma chilensis (McIntosh, 1885) as *Euthelepus chilensis*.
Day 1963b, 1967. Type locality Chile. Distribution (5, 14) 3974m.

Streblosoma crassibranchia Treadwell, 1914.
Hartman 1956, 1969, Fauchald 1977b. Type locality Southern California. Distribution (3, 4, 8) moderate depths.

Streblosoma gracile Caullery, 1944
Hutchings 1977. Type locality Sulu Sea. Distribution (15, 19) 6-535m.

Streblosoma hartmanae Kritzler, 1971.
Type locality Gulf of Mexico. Distribution (9) eulittoral and shallow water.

Streblosoma hesslei Day, 1955.
Day 1967. Type locality South Africa. Distribution (14).

Streblosoma intestinale Sars, 1872.
Synonym: *Grymaea brachiata* Ehlers, 1874.
Wollebæk 1912, Hessle 1917, Hartmann-Schröder 1971, Holthe 1986aa.
Type locality Norway and Sweden. Distribution (1, 11) 50- 500m.

Streblosoma japonica Hessle, 1917.
Imajima & Hartman 1964. Type locality Japan. Distribution (16) 10m.

Streblosoma latudinis Huthings & Murray, 1984.
Type locality New South Wales. Distribution (18) shallow water.

Streblosoma longifilis Rioja, 1962.
Type locality Western Mexico. Distribution (4) 22m.

Streblosoma longiremis Caullery, 1915.
Caullery 1944. Type locality Malaya. Distribution (15) 960m.

Streblosoma persica (Fauvel, 1908) as *Grymaea persica*.
Fauvel 1911, Day 1967. Type locality Iranian Gulf. Distribution (15).

Streblosoma polybranchia Verrill, 1900, as *Streblosoma (Eugrymaea) polybranchia*.
Hessle 1917. Type locality Bermuda. Distribution (9) shallow water.

Streblosoma quadridentatum Caullery, 1944.
Type locality Macassar. Distribution (15) 27-32m.

Streblosoma spiralis (Verrill, 1874) as *Grymaea spiralis*.
Type locality Maine. Distribution (10) 147m.

(*Streblosoma bairdi antarctica* Monro, 1936, see *Streblosoma antarctica*)

(*Streblosoma cochleatum* Sars, 1872, see *Streblosoma bairdi*)
(*Streblosoma crassibranchiata* Monro, 1933, error for *Streblosoma crassibranchia*)
(*Streblosoma magna* Treadwell, 1937, see *Thelepus crispus*)
(*Streblosoma verrilli* Treadwell, 1911, see *Thelepus setosus*)

Telothelepus Day, 1955,
type: *Telothelepus capensis* Day, 1955, monotypic.
Day 1967, Fauchald 1977a. Number of valid species 1. Distribution (14).

Telothelepus capensis Day, 1955.
Day 1967. Type locality South Africa. Distribution (14) shallow water.

(*Thelephusa* Verrill, 1871, see *Thelepus*)
(*Thelephusa circinnata* Verrill, 1871, see *Thelepus cincinnatus*)

(*Thelepides* Gravier, 1911, see AMPHITRITINAE)

(*Thelepides* Southern, 1914, HOMONYM, see *Parathelepus*)

(*Thelepides collaris* Southern, 1914, see *Parathelepus collaris*)

(*Thelepodopsis* Sars, 1872, see *Thelepus*)

(*Thelepodopsis flava* Sars, 1872, see *Thelepus cincinnatus*)

Thelepus Leuckart, 1849,

type: *Amphitrite cincinnata* Fabricius, 1780,

synonyms: *Heterophenacia* Quatrefages, 1866; *Lumara* Stimpson, 1854; *Neottis* Malmgren, 1866; *Phenacia* Quatrefages, 1866; *Terebellanice* Hartmann-Schröder, 1962; *Thelephusa* Verrill, 1871; *Thelepodopsis* Sars, 1872; *Venusia* Johnston, 1865.

Malmgren 1866, Kinberg 1867, Grube 1877, Willey 1902, Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a, Holthe 1986a. Number of valid species 29. Distribution (1, 2, 3, 4, 5?, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 28, 29).

Thelepus abyssorum Caullery, 1944.

Type locality Easty India. Distribution (24) 960-1886m.

Thelepus angustirostris Caullery, 1944.

Type locality East India. Distribution (15) 55-90m.

Thelepus antarcticus Kinberg, 1867.

Willey 1902. Type locality Antarctica. Distribution (22) shallow water.

Thelepus branchiatus Treadwell, 1906.

Moore 1923, Hartman 1966a. Type locality Molokai Islands. Distribution (3, 15) 59-548m.

Thelepus cincinnatus (Fabricius, 1780).

Synonyms: *Heterophenacia nucleolata* Claparède, 1870,

Heterophenacia renouardi Marion, 1883,

Lumara flava Stimpson, 1854,

Phenacia ambigrada Claparède, 1870,

Phenacia pulchella Parfitt, 1866,

Phenacia retrograda Claparède, 1870,

Phenacia terebelloides Quatrefages, 1865,

Terebella lutea Risso, 1826 ?

Terebella madida Frey & Leuckart, 1847,

Terebella pustulosa Grube, 1860,

Thelephusa cincinnata Verrill, 1871,

Thelepodopsis flava Sars, 1872,

Thelepus crassibranchiatus Treadwell, 1901.

Venusia punctata Johnston, 1865.

Malmgren 1866, Augener 1906, Wolllebæk 1912, Southern 1914, Fauvel

1909, 1927, 1933, McIntosh 1915, 1922, Hessle 1917, Thorson 1946, Wesenberg-Lund 1950a, Ušakov 1955, Imajima & Hartman 1964, Levenstejn 1964, Hartman 1966c, Hartmann-Schröder 1971, Averincev 1982, Holthe 1986a. Type locality Greenland. Distribution (1, 2, 6, 8, 10, 11, 12, 16, 17, 22, 26, 28, 29) eulittoral to ca 4000m. *Thelepus cincinnatus canadensis* McIntosh, 1885. Hessle 1917.

Thelepus comatus (Grube, 1859) as *Terebella comata*.
Synonym *Thelepus natans* Kinberg, 1867.
Hessle 1917, Day 1955, 1967. Type locality Chile. Distribution (5?, 6, 15).

Thelepus crispus Johnson, 1901.
Synonym: *Streblosoma magna* Treadwell, 1937.
Hessle 1917, Berkeley & Berkeley 1942, Hartman 1956, 1969, Dales 1961, Garlick & Terwilliger 1974, Jumars et al. 1982. Type locality Washington to California. Distribution (2, 3, 4) littoral.

Thelepus dubius Caullery, 1944.
Type locality Malay Archipelago. Distribution (15) 22-73m.

Thelepus hamatus Moore, 1905.
Hessle 1917, Hartman 1969. Type locality Alaska. Distribution (2, 3, 4) 85-355m.

Thelepus japonicus Marenzeller, 1884.
Imajima & Hartman 1964. Type locality Japan. Distribution (2, 15, 16) eulittoral to 600m.

Thelepus laeviseta (Hartmann-Schröder, 1962) as *Terebellanice laeviseta*.
Banse 1980. Type locality Chile. Distribution (5) eulittoral and upper sublittoral.

Thelepus leptoplocamus (Grube, 1878) as *Phenacia leptoplocamus*.
Wiktor 1980. Type locality Philippines. Distribution (15).

Thelepus marenzelleri McIntosh, 1885.
Imajima & Hartman 1964. Type locality off Southern Japan. Distribution (25) 1426m.

Thelepus mcintoshi Grube, 1878.
Type locality Kerguelen. Distribution (22).

Thelepus microbranchiatus Caullery, 1944.
Type locality East India. Distribution (15) 304-395m.

Thelepus parvus (Grube, 1878) as *Phenacia parca*.

Wiktor 1980. Type locality Philippines. Distribution (15).

Thelepus paucibranchis (Grube, 1878) as *Phenacia paucibranchis*.

Hessle 1917, Wiktor 1980. Type locality Philippines. Distribution (15).

Thelepus pequenianus Augener, 1918.

Day 1955, 1961, 1967. Type locality West Africa. Distribution (13, 14?) eulittoral and shallow water.

Thelepus pericensis Chamberlin, 1919.

Type locality Pacific coast of Panama. Distribution (4).

Thelepus plagiostoma Schmarda, 1861.

Synonyms: *Neottis antarctica* McIntosh, 1876,

Neottis rugosa Ehlers, 1897,

Terebella heterobranchia Schmarda, 1861.

McIntosh 1885, Hessle 1917, Fauvel 1919, 1933, Augener 1926, Day 1934, 1955, 1967, Ušakov 1955, Levenstejn 1964, Hartman 1966c, Rullier 1972, Hutchings 1977. Type locality New Zealand. Distribution (2, 5?, 6, 14, 15, 16, 17, 18, 20, 21, 22) eulittoral to 600m.

Thelepus robustus (Grube, 1878) as *Phenacia robusta*.

Caullery 1944, Hutchings 1977, Wiktor 1980. Type locality Philippines. Distribution (15, 18).

Thelepus rugosus Ehlers, 1905.

Ehlers 1912. Type locality off East African coast. Distribution (15) 863m.

Thelepus setosus (Quatrefages, 1865) as *Phenacia setosa*.

Synonyms: *Streblosoma verrilli* Treadwell, 1911,

Thelepus haitiensis Treadwell, 1901 ?

Southern 1914, Fauvel 1916, 1927, Monro 1933, Rioja 1947, Hartman 1956, 1966c, 1969, Hartmann-Schröder 1962, 1965, Imajima & Hartman 1964, Day 1967, Rullier 1972, Fauchald 1977b, Duchêne 1970. Type locality France. Distribution (2, 3, 5?, 6, 8, 9, 11, 12, 14, 15, 16, 17, 18, 19) eulittoral to moderate depths.

Thelepus setosus africana Day, 1951, perhaps *Thelepus plagiostoma*.

Thelepus spectabilis Ehlers, 1897 (perhaps *T. setosus*).

Augener 1926. Type locality Patagonia. Distribution (6, 20?, 21?, 26) 9-28m.

Thelepus taamensis Caullery, 1944.

Type locality off East India. Distribution (15) 310m.

Thelepus thoracicus (Grube, 1870) as *Terebella thoracica*.

Gravier 1905c, Potts 1928, Monro 1934, Caullery 1944. Type locality Red Sea. Distribution (15) shallow water.

Thelepus toyamaensis Okuda, 1936.

Imajima & Hartman 1964. Type locality Japan. Distribution (16) 90m.

Thelepus triserialis (Grube, 1855) as *Terebella triserialis*.

Fauvel 1909, 1927, McIntosh 1915, 1922, Day 1951, 1955, 1961, 1967. Type locality Mediterranean. Distribution (2, 12, 14, 15) shallow water.

Thelepus vaughani Gravier, 1906.

Type locality Red Sea. Distribution (15).

(*Thelepus bergmanni* Leuckart, 1849, see *Thelepus cincinnatus*)

(*Thelepus cincinnatus andreanae* McIntosh, 1922, see *Thelepus cincinnatus*)

(*Thelepus circinnata* Malmgren, 1866, error for *cincinnata*)

(*Thelepus crassibranchiatus* Treadwell, 1901, see *Thelepus cincinnatus*)

(*Thelepus haitiensis* Treadwell, 1901, probably *Thelepus setosus*)

(*Thelepus natans* Kinberg, 1867, see *Thelepus comatus*)

(*Venusia* Johnston, 1865, see *Thelepus*)

(*Venusia punctata* Johnston, 1865, see *Thelepus cincinnatus*)

POLYCIRRINAE Malmgren, 1866

Caullery 1915d, 1944, McIntosh 1922, Fauvel 1927, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Holthe 1986a. Number of genera described 17, whereof 7 are presently considered valid. Number of valid species 69.

(*Amaea* Malmgren, 1866, HOMONYM, see *Amaeana*)

(*Amaea accraensis* Augener, 1918, see *Amaeana accraensis*)

(*Amaea antipoda* Augener, 1926, see *Amaeana antipoda*)

(*Amaea colei* McIntosh, 1926, see *Amaeana colei*)

(*Amaea occidentalis* Hartman, 1944, see *Amaeana occidentalis*)

Amaeana Hartman, 1959, replacing *Amaea* Malmgren, 1866,

type: *Polycirrus trilobatus* Sars, 1863,

synonym: *Amaea* Malmgren, 1866.

Hessle 1917, Fauvel 1927, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a, Holthe 1986a. Number of valid species 5. Distribution (1, 2, 3, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 22).

Amaeana accraensis (Augener, 1918) as *Amaea accraensis*.

Kirkegaard 1959, Day 1967. Type locality Gold Coast. Distribution (9, 13, 14).

Amaeana antipoda (Augener, 1926) as *Amaea antipoda*.

Type locality New Zealand. Distribution (21).

Amaeana colei (McIntosh, 1926) as *Amaea colei*.

Type locality Isle of Man. Distribution (11).

Amaeana occidentalis (Hartman, 1944) as *Amaea occidentalis*.

Hartman 1969, Banse 1980. Type locality California. Distribution (2, 3) eulittoral to shelf and canyon depths.

Amaeana trilobata (Sars, 1863) as *Polycirrus trilobatus*.

Malmgren 1866, Wollebæk 1912, McIntosh 1915, Hessle 1917, Fauvel 1927, Day 1961, 1967, Imajima & Hartman 1964, Hartmann-Schröder 1971, Hartman & Fauchald 1971, Hutchings 1977, Holthe 1986aa. Type locality Norway. Distribution (1, 9, 10, 11, 12, 14, 15, 17, 18) 2-2891m.

(*Anisocirrus* Gravier, 1905, see *Polycirrus*)

(*Anisocirrus decipiens* Gravier, 1905, see *Polycirrus decipiens*)

(*Anisocirrus mexicanus* Rioja, 1947, see *Polycirrus mexicanus*)

(*Aphlebina* Claparède, 1864, see *Polycirrus*)

(*Aphlebina haematodes* Claparède, 1864, see *Polycirrus haematodes*)

(*Aphlebina pallida* Claparède, 1864, see *Polycirrus pallidus*)

(*Apneumea* Quatrefages, 1866, see *Polycirrus*)

(*Apneumea leoncina* Quatrefages, 1866, see *Polycirrus haematodes*)

(*Apneumea pellucida* Quatrefages, 1866, see *Polycirrus pellucida*)

Biremis Polloni, Rowe & Teal, 1973,

type: *Biremis blandi* Polloni, Rowe & Teal, 1973, monotypic.

Number of valid species 1. Distribution (8).

Biremis blandi Polloni, Rowe & Teal, 1973.

Type locality Bahamas. Distribution (8) 597m.

(*Chaetobranchus* Verrill, 1873, see *Enoplobranchus*)

(*Chaetobranchus sanguineus* Verrill, 1873, see *Enoplobranchus sanguineus*)

(*Cyaxares* Kinberg, 1867, see *Polycirrus*)

(*Cyaxares clavatus* Kinberg, 1867, see *Polycirrus clavatus*)

(*Dejoces* Kinberg, 1867, see *Polycirrus*)

(*Dejoces chilensis* Kinberg, 1867, see *Polycirrus chilensis*)

Enoplobranchus Webster, 1879,

type: *Chaetobbranchus sanguinea* Verrill, 1873, monotypic,

synonym: *Chaetobbranchus* Verrill, 1873.

Fauchald 1977. Number of valid species 1. Distribution (9, 10).

Enoplobranchus sanguinea (Verrill, 1873) as *Chaetobbranchus sanguinea*.

Verrill 1879, 1881, Hessle 1917, Hartman 1942, 1945, Weber et al. 1977. Type locality eastern United States. Distribution (9, 10).

(*Ereutho* Malmgren, 1866, see *Polycirrus*)

(*Ereutho antarctica* Willey, 1902, see *Polycirrus kerguelensis*)

(*Ereutho kerguelensis* McIntosh, 1885, see *Polycirrus kerguelensis*)

(*Ereutho plumosa* Wollebæk, 1912, see *Polycirrus plumosus*)

(*Ereutho serrisetis* Grube, 1870, incompletely known)

(*Ereutho smitti* Malmgren, 1866, see *Polycirrus medusa*)

Hauchiella Levinsen, 1893,

type: *Polycirrus tribullatus* McIntosh, 1869, monotypic.

Hessle 1917, McIntosh 1922, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Holthe 1986a. Number of valid species 1. Distribution (6, 11, 22).

Hauchiella tribullata (McIntosh, 1869) as *Polycirrus tribullatus*.

Synonyms: *Hauchiella peterseni* Levinsen, 1893,

Lysilla inermis Ehlers, 1913.

Wollebæk 1912, McIntosh 1915, 1922, Hessle 1917, 1922, Hartman 1966c, 1978, Day 1967, Hartmann-Schröder 1971, Holthe 1986a. Type locality off Scotland. Distribution (6, 11, 22) 20-300m.

(*Hauchiella peterseni* Levinsen, 1893, see *Hauchiella tribullata*)

(*Leucariste* Malmgren, 1866, see *Polycirrus*)

(*Leucariste albicans* Malmgren, 1866, see *Polycirrus arcticus*)

Litancyra Hutchings, 1977,

type: *Litancyra octoseta* Hutchings, 1977, monotypic.

Number of valid species 1. Distribution (18).

Litancyra octoseta Hutchings, 1977.

Type locality Queensland. Distribution (18) shallow water.

Lysilla Malmgren, 1866,

type: *Lysilla loveni* Malmgren, 1866, monotypic.

Hessle 1917, McIntosh 1922, Fauvel 1927, Caullery 1944, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Hutchings 1977, Fauchald 1977a, Holthe 1986a. Number of valid species 9. Distribution (1, 2, 5, 6, 9?, 10, 11, 12, 14, 15, 16, 17, 18, 21, 22).

Lysilla alba Webster, 1879.

Hartman 1945. Type locality Virginia. Distribution (9?, 10).

Lysilla albomaculata Caullery, 1944.

Type locality Malay Archipelago. Distribution (15) 959m.

Lysilla apheles Hutchings, 1974.

Hutchings 1977. Type locality New South Wales. Distribution (18) littoral.

Lysilla laeviseta Hartmann-Schröder, 1965.

Type locality Chile. Distribution (5) 150-200m.

Lysilla loveni Malmgren, 1866.

Wollebæk 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, Thorson 1946, Ušakov 1955, Hartmann-Schröder 1971, Banse 1980, Holthe 1986a. Type locality Sweden. Distribution (1, 2, 6, 11, 12, 17, 21, 22) moderate depths.

Lysilla loveni macintoshi Gravier, 1907, as *Lysilla macintoshi*.

Hessle 1917, Monro 1930, Levenstejn 1964, Hartman 1966c, 1978, Averincev 1982.

Lysilla nivea Langerhans, 1884.

Type locality Madeira. Distribution (12).

Lysilla pacifica Hessle, 1917.

Ušakov 1955, Imajima & Hartman 1964, Rullier 1972, Hutchings 1977. Type locality Japan. Distribution (2, 14, 15, 16, 18) eulittoral and shallow water.

Lysilla pambanensis Fauvel, 1928.

Type locality India. Distribution (15).

Lysilla ubianensis Caullery, 1944.

Day 1957, 1967. Type locality Malay Archipelago. Distribution (15, 16) shallow water.

(*Lysilla inermis* Ehlers, 1913, see *Hauchiella tribullata*)

(*Lysilla macintoshi* Gravier, 1907, see *Lysilla loveni macintoshi*)

Polycirrus Grube, 1850,

type: *Polycirrus medusa* Grube, 1850.

synonyms: *Anisocirrus* Gravier, 1905; *Aphlebina* Claparède, 1864; *Apneuma* Quatrefages, 1866; *Cyaxares* Kinberg, 1867; *Dejoces* Kinberg, 1867; *Ereutho* Malmgren, 1866; *Leucariste* Malmgren, 1866; *Torquea* Leidy, 1855; *Pseudoampharete* Hartmann-Schröder, 1960.

Malmgren 1866, Schmarda 1861, Langerhans 1884, Willey 1902, Wollebæk 1912, Hessle 1917, McIntosh 1922, Fauvel 1927, 1933, Ušakov 1955, Day 1967, Hartmann-Schröder 1971, Fauchald 1977a, Banse 1980, Holthe 1986a. Number of valid species 41. Distribution (1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22).

Polycirrus antarcticus (Willey, 1902) as *Ereutho antarcticus*. Hartman 1966, Averincev 1982. Type locality Antarctica. Distribution (22).

Polycirrus aquila Caullery, 1944, as *Polycirrus (Ereutho) aquila*. Type locality off Malay Archipelago. Distribution (15) 9-36m.

Polycirrus arcticus Sars, 1865.

Synonym: *Leucariste albicans* Malmgren, 1866.

Wollebæk 1912, Hessle 1917, Zenkewitsch 1923, Messjatzev 1926, Wesenberg-Lund 1950a, Holthe 1986a. Type locality Arctic Ocean. Distribution (1, 10, 11, 29) 60-1440m.

Polycirrus arenivorus Caullery, 1915, as *Polycirrus (Leucariste) arenivorus*.

Caullery & Mesnil 1915, Fauvel 1927. Type locality English Channel. Distribution (12) shallow water.

Polycirrus aurantiacus Grube, 1860.

Langerhans 1884, Brumpt 1897, McIntosh 1922, Fauvel 1927, Day 1967, Hartmann-Schröder 1971, Wiktor 1980, Holthe 1986a. Type locality France. Distribution (11, 12, 13) shallow water.

Polycirrus boholensis Grube, 1878.

Type locality Philippines. Distribution (15).

Polycirrus caliendrum, Claparède, 1868.

Fauvel 1909, 1927, Southern 1914, McIntosh 1922, Hartmann-Schröder 1971, Holthe 1986a. Type locality Gulf of Naples. Distribution (2?, 11, 12) shallow water.

Polycirrus californicus Moore, 1909.

Hartman 1969, Banse 1980. Type locality Southern California. Distribution (2, 3) eulittoral.

Polycirrus chilensis Schmarda, 1861.

Kinberg 1867. Type locality Chile. Distribution (5) 4-11m.

Polycirrus clavatus (Kinberg, 1867) as *Cyaxares clavatus*.

Type locality Brazil. Distribution (5, 8) 33m.

Polycirrus coccineus Grube, 1870 as *Polycirrus (Leucariste) coccineus*.

Type locality Red Sea. Distribution (15).

Polycirrus decipiens (Gravier, 1905) as *Anisocirrus decipiens*.

Hessle 1917. Type locality Red Sea. Distribution (15) 15-20m.

Polycirrus denticulatus Saint-Joseph, 1894.

Synonym: *Polycirrus triglandula* Langerhans, 1881.

Southern 1914, McIntosh 1922, Fauvel 1927. Type locality France. Distribution (8, 11, 12) shallow water.

Polycirrus elisabethae McIntosh, 1915 (perhaps *Polycirrus norvegicus*).

Type locality Great Britain. Distribution (11).

Polycirrus eous Annenkova, 1924.

Ušakov 1955. Type locality Sea of Okhotsk. Distribution (17).

Polycirrus eximius (Leidy, 1855) as *Torquea eximia*.

Verrill 1873b, Hartman 1945. Type locality New England. Distribution (9, 10).

Polycirrus haematodes (Claparède, 1864) as *Aphlebina haematodes*.

Synonym: *Apneumea leoncina* Quatrefages, 1866.

Langerhans 1884, St. Joseph 1894, Southern 1914, McIntosh 1922, Fauvel 1927, Day 1961, 1967, Holthe 1986a. Type locality Mediterranean. Distribution (11, 12, 14?) shallow water.

Polycirrus hamiltoni Benham, 1921.

Monro 1930, Hartman 1966c. Type locality Macquari Island, Subantarctic. Distribution (6, 22) moderate depths.

Polycirrus hesslei Monro, 1930.

Monro 1936, Hartman 1966c. Type locality Subantarctic waters. Distribution (6, 22) 17-130m.

Polycirrus insignis Gravier, 1907.

Hartman 1966c. Type locality Port Charcot, Antarctica. Distribution (22) 40-60m.

Polycirrus jubatus Bobretzky in Annenklova, 1924.
Type locality Black Sea. Distribution (12).

Polycirrus kerguelensis McIntosh, 1885.
Synonym: *Ereutho antarctica* Willey, 1902.
Hessle 1917, Augener 1926, Hartman 1966c. Type locality Kerguelen.
Distribution (2, 6, 20, 21, 22) lower eulittoral to 385m.

Polycirrus latidens Eliason, 1962.
Hartmann-Schröder 1971, Holthe 1986a. Type locality Skagerrak.
Distribution (11) 50-531m.

Polycirrus medius Hessle, 1917.
Okuda 1938a, Hartman 1954, Imajima & Hartman 1964. Type locality Japan. Distribution (16).

Polycirrus medusa Grube, 1850.
Synonym: *Ereutho smitti* Malmgren, 1866.
Wollebæk 1912, Southern 1914, McIntosh 1915, 1922, Hessle 1917,
Fauvel 1927, Tanassiieuk 1927, Wesenberg-Lund 1950a, Ušakov 1955,
Hartmann-Schröder 1971, Holthe 1986a. Type locality Mediterranean.
Distribution (1, 10, 11, 12, 17) eulittoral to ca 1500m.

Polycirrus mexicanus (Rioja, 1947) as *Anisocirrus mexicanus*.
Type locality Western Mexico. Distribution (4).

Polycirrus multisetigerus Hartmann-Schröder, 1962.
Hartmann-Schröder 1965b. Type locality Chile. Distribution (5)
shallow water.

Polycirrus nervosus Marenzeller, 1884.
Hessle 1917, Augener 1926, Imajima & Hartman 1964. Type locality Japan. Distribution (16, 21) 135-600m.

Polycirrus norvegicus Wolllebæk, 1912.
Hessle 1917, Holthe 1986a. Type locality Norway. Distribution (11)
10-270m.

Polycirrus pallidus (Claparède, 1864) as *Aphlebina pallida*.
Langerhans 1884, Fauvel 1927, Monro 1933. Type locality Medi-
terranean. Distribution (12) shallow water.

Polycirrus pennulifera Verrill, 1900.
Type locality Bermuda. Distribution (9) shallow water.

Polycirrus perplexus Moore, 1923.
Hartman 1969. Type locality Central California. Distribution (3)
18-517m.

Polycirrus phosphoreus Verrill, 1880.

Type locality Eastern Canada. Distribution (10) 18-92m.

Polycirrus plumosus (Wollebæk, 1912) as *Ereutho plumosa*.

Hessle 1917, Day 1961, 1967, Hartmann-Schröder 1971, Holthe 1986a.

Type locality Norway. Distribution (11, 14) 40-150m.

Polycirrus porcatus Knox & Cameron, 1971.

Type locality Victoria. Distribution (19).

Polycirrus purpureus Schmarda, 1861.

Synonym: *Polycirrus luminosus* Verrill, 1900.

Augener 1925b. Type locality Jamaica. Distribution (8, 9) 10-12m.

Polycirrus rosea Hutchings & Murray, 1984.

Type locality New South Wales. Distribution (18) 4m.

Polycirrus swakopianus Augener, 1918.

Day 1967. Southwest Africa. Distribution (14).

Polycirrus tentaculatus (Hartmann-Schröder, 1960) as *Pseudoampharete tentaculata*.

Hartmann-Schröder 1962. Type locality northern Peru. Distribution (5) upper sublittoral.

Polycirrus tenuisetis Langerhans, 1881.

Fauvel 1927, Day 1961, 1967. Type locality Madeira. Distribution (12, 14).

Polycirrus twisti Potts, 1928.

Type locality Suez Canal. Distribution (15).

(*Polycirrus corallicola* Verrill, 1900, indeterminate)

(*Polycirrus luminosus* Verrill, 1900, see *Polycirrus purpureus*)

(*Polycirrus pellucida* (Quatrefages, 1865) as *Apneumea pellucida*, indeterminate)

(*Polycirrus tribullata* McIntosh, 1869, see *Hauchiella tribullata*)

(*Polycirrus triglandula* Langerhans, 1881 see *Polycirrus denticulatus*)

(*Polycirrus trilobatus* Sars, 1863, see *Amaeana trilobata*)

(*Torquea* Leidy, 1855, see *Polycirrus*)

(*Torquea eximia* Leidy, 1855, see *Polycirrus eximius*)

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Including papers quoted in text and catalogue, as well as all papers containing original descriptions, and some unquoted papers containing faunistic information on the terebellomorphs.

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